

UNITED STATES COAST GUARD
MARINE SAFETY OFFICE DETROIT
DETROIT, MICHIGAN



SMALL PASSENGER VESSEL
INFORMATION PACKAGE

Revised May 12, 2003

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Introduction to this Package

Introduction

This package is to familiarize you with the process necessary to receive Coast Guard certification to carry passengers for hire.

This package applies to vessels less than 100 gross tons, carrying more than 6 passengers including at least one of which is a passenger for hire, but less than 150 passengers or 49 passengers overnight.

Although extensive, this guide is not meant to be all-inclusive nor to replace the regulations regarding passenger-carrying vessels. It is designed to provide an introduction to the regulations.

Getting a Copy of the Regulations

If you do decide to have your vessel Coast Guard certified for carrying passengers, we strongly recommend you obtain a copy of the regulations.

Insure you have a copy dated October 1, 2002 or later. To get a fully up to date copy see the government's internet web site at:
www.access.gpo.gov/nara/cfr/cfr-table-search.html

Printed copies can be obtained from the local government book store or by contacting the Government Printing Office (GPO) at toll free number (866) 512-1800. The bookstore and GPO accepts Visa or Mastercard and will mail you a copy. Ask for 46 CFR Parts 166 to 199.

Using This Guide

This guide is divided into sections A thru H relating to specific topics covered by the regulations.

Within each section are numbered pages, which are devoted to specific sub-topics and may cover one or several pages.

We recommend you use the Index to guide you to the topics you have questions about.

Summary

We hope this package will help answer questions you have about passenger carrying vessels. If you have additional questions contact our office at (313) 568-9580.

Introduction to the Certification of Small Passenger Vessels

Introduction

The Commercial Vessel Safety Department at the U. S. Coast Guard Marine Safety Office Detroit, has the responsibility for inspecting all passenger vessels that operate on the navigable waters of the United States in our zone. This zone stretches from Detroit River Light, to Harrisville, Michigan

Federal Regulations

Title 46 of the Code of Federal Regulations, Subchapter T, Parts 175 to 187, govern the inspection and operation of small passenger vessels.

These regulations will be used to inspect your vessel.

Small Passenger Vessel

A small passenger vessel is any vessel that is less than 100 gross tons, carrying more than 6 passengers including at least one of which is a passenger for hire, but less than 150 passengers or 49 passengers overnight, these vessels are inspected using Subchapter T, the vessel is often referred to as a "T-Boat".

Vessels that are less than 100 gross tons, carrying more than 150 passengers or more than 49 overnight are inspected using Subchapter K, these are referred to as "K-Boats".

Passenger for Hire

Passenger for hire means a passenger for whom consideration is contributed as a condition of carriage on the vessel, whether directly or indirectly flowing to the owner, charterer, operator, agent, or any other persons having an interest in the vessel.

Uninspected Passenger Vessel

A passenger vessel less than 100 gross tons and carries 6 or less passengers is not required to be inspected by the U. S. Coast Guard. This is sometimes referred to as a "6-pack", and is required to be operated in accordance with *46 CFR Subchapter "C"*. Vessels more than 100 gross tons may carry 12 passengers or less for hire.

The person in charge of this vessel must hold as a minimum a valid U.S. Coast Guard license as operator of an uninspected passenger vessel.

About the Coast Guard Marine Safety Office

Introduction

The U.S. Coast Guard Marine Safety Office Detroit is located at the foot of Mount Elliott Ave. in Detroit, MI.

Our address is:

USCG MSO Detroit
110 Mount Elliott Ave.
Detroit, MI 48207

Calling our office:

(313) 568-9580

Sending us a fax:

(313) 568-9581

About the Office

The Commanding Officer of the Marine Safety Office is both the *Officer in Charge, Marine Inspection (OCMI)* and *Captain of the Port (COTP)*.

The office is divided into three departments:

- *Commercial Vessel Safety (CVS)* - Responsible for the inspection of all U.S. and foreign flag vessels that operate in or enter our zone. This includes small passenger vessels, tankers, freight carriers, barges, and cruise ships. Also responsible for investigation of incidents or accidents involving commercial vessels or merchant mariners in our zone.
- *Port Operations Department* - Responsible for the inspection of port facilities, responses to casualties or pollution of the marine environment. Also responsible for spill contingency planning.
- *Port Security Department* – Responsible for port security including verifying security plans of waterside facilities, River Watch Program, and oversight of port security patrols.

For more information about MSO Detroit including recent Marine Safety Information Bulletins, please visit our web site at:
<http://www.uscg.mil/msodetroit/>.

About the Coast Guard Marine Safety Office (*Continued*)

Commercial Vessel Safety

The Commercial Vessel Safety Department includes the Chief Inspection Department (CID) and Senior Investigating Officer (SIO). If you have a question about or want to schedule an inspection of your vessel you should ask for the Chief or Assistant Chief of Inspections, if you have a question about investigations or want to report an accident involving a commercial vessel and/or Merchant Mariner ask for the Senior Investigating Officer or an Investigating Officer.

Authority

Authority for ensuring compliance with the regulations is the responsibility of the Commandant of the Coast Guard, and locally with the Officer in Charge Marine Inspection (OCMI).

Appeals

Introduction

It is the right of the owner of a vessel to appeal any decision or requirement issued by a Marine Inspector.

Procedure

First, write a letter explaining why you disagree with the requirement issued to the vessel by the Marine Inspector and submit it to the Chief, Vessel Safety (**CVS**). Based on information provided by the owner and input from the Marine Inspector, CVS will make a decision based on the Regulations and will respond in writing to the appeal.

If still not satisfied with the answer received from CVS, the owner has the right to continue to appeal "up the chain of command" as follows:

The next level of appeal is through the Officer in Charge of Marine Inspection (**OCMI**) at MSO Detroit.

The owner may next appeal to the 9th Coast Guard District Office, Marine Safety Division, Cleveland, Ohio.

Finally, the owner has the right to appeal to the Commandant of the Coast Guard, Office of Marine Safety, Washington, D.C.

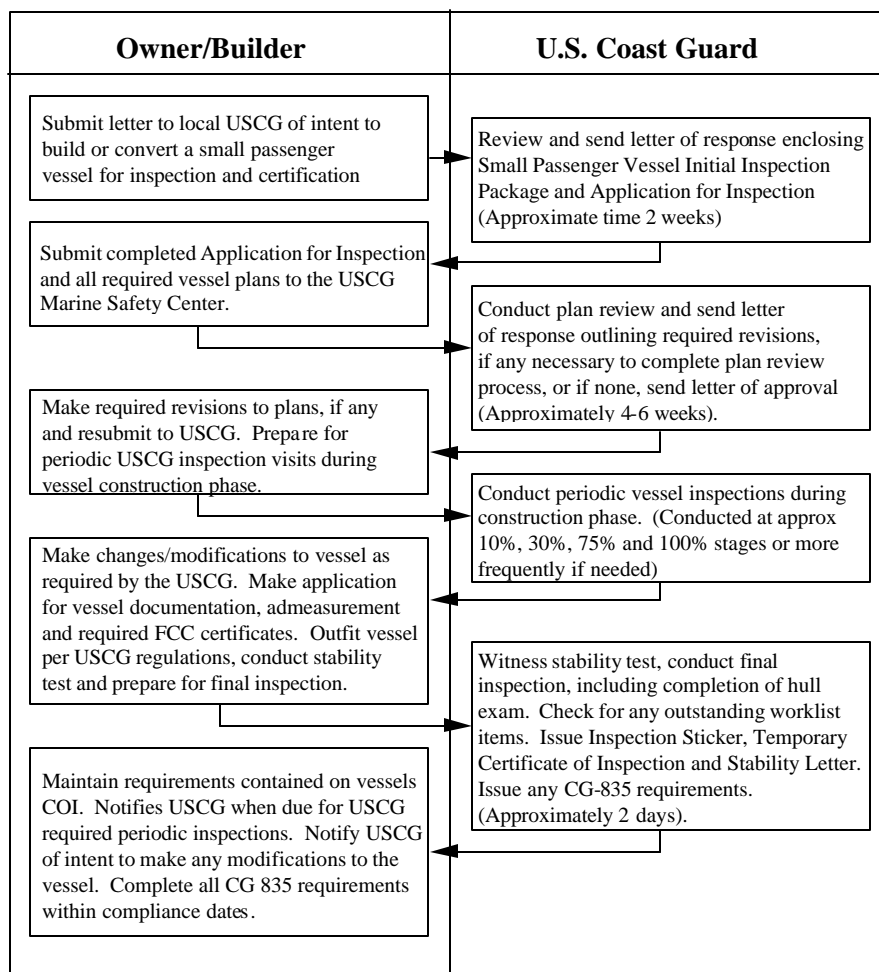
Certification Process

Introduction

The process of certification of a vessel takes approximately 6 months. Some take less time, some take more, depending on the quality and quantity of the information submitted in the plans, whether it is a new construction project or a conversion, and how ready the vessel is for inspection.

The flow chart exhibited below lists the steps to final certification. Note: some vessels may be new construction, some conversions or others, sister vessels to those already certificated, therefore some steps may not be necessary.

Note: All new construction and initial Certificate of Inspection Plan Review will be completed by the Marine Safety Center at 400 7th St. SW, Room 6302 NASSIF Building, Washington D.C. 20590-0001



Annual Inspection Requirements Once a Vessel Is Certificated

Annual Inspections

Vessels are issued a Certificate of Inspection (COI) valid for a period of 5 years, and must receive an inspection prior to the expiration of the COI. No extension of the expiration date is allowed. On annual anniversaries of the COI's issuance date vessels are required to be **re-inspected** to ensure the vessel is being maintained in compliance with the regulations. The re-inspection must be conducted within 60 days before or after the COI anniversary issue date. A re-inspection may or may not be as detailed as a COI inspection, dependent on the condition of the vessel.

Deficiencies

Any equipment, machinery or structural items found by the inspector to be deficient will be required to be corrected.

The inspector will provide the owner/operator with a list of items found deficient and needing correction. These items are listed on a Coast Guard Form (CG-835), commonly known in the industry as "an 835."

The Marine Inspector may allow the vessel to continue to operate provided the deficiencies are corrected prior to the 835's established deadline date. Some items such as those involving life saving or fire fighting equipment may be required to be fixed prior to the vessel carrying passengers.

Drydocking and Internal Structural Exam Inspection Requirements Once Vessel is Certificated

Drydocking Interval

All vessels are required to drydock at intervals as follows:

2 Years - vessels that are exposed to salt water more than 3 months in any 12 month period.

5 Years - vessels that are exposed to salt water not more than 3 months in any 12 month period.

Drydocking or Hauling Out

The vessel is to be hauled out at the owner's expense. The owner should accomplish the following prior to the arrival of the Coast Guard Marine Inspector:

- Clean the hull (do not paint the vessel prior to the inspector's arrival).
- Remove all sea strainers.
- Open all sea valves (within 6" of the waterline and below). The inspector will need to inspect valve surfaces and valve seats.
- Open and air out all internal spaces for at least 24 hours.
- Clean all water and oily water from the bilges.

The Marine Inspector will inspect all items as listed above and inspect the vessel's shaft(s), shaft bearing(s), propeller(s) and rudders. If necessary the inspector may require that the propeller(s) or shaft(s) be pulled for inspection.

Scheduling an Inspection

To Schedule an inspection

Contact the Chief, or the Assistant Chief, of the CVS Department to schedule an inspection. Please try to schedule your inspection as soon as possible, preferably 30 days in advance. Call (313) 568-9580 and ask for either individual.

It is the owner's responsibility to schedule a time and date for an inspection. You will need to schedule inspections for the COI, re-inspections, drydock exams, and return visits to the vessel to inspect items found deficient during a previous inspection.

Length of Inspections

The length of time it takes to complete an inspection varies from boat to boat. On the average a COI will take 2 to 2 1/2 hours, a re-inspection usually takes less time. A drydock inspection takes approximately 2 hours.

Vessel Routes

Introduction

The Certificate of Inspection specifies the route the vessel will be allowed to operate on while carrying passengers. As you will notice in this package, depending on the vessel's route, different construction and equipment requirements may apply.

The following are general routes authorized for this zone. Although not all inclusive, it is meant to give you a description of the different types of routes we authorize. Route descriptions are vessel specific and may be more restrictive than those listed below.

Great Lakes

More than 20 nautical miles from shore.

Great Lakes

Not more than 20 miles from shore.

Great Lakes

Not more than 20 miles from a harbor of safe refuge. This includes vessels operating more than 3 miles from shore on Saginaw Bay.

Lakes, Bays and Sounds

A route that is on a lake or inside an imaginary line across the opening or mouth of any bay or sound. Vessels must operate within 3 miles from shore on Saginaw Bay for this route.

Rivers

A route that is on the St. Clair River, Lake St. Clair or Detroit River.

Note

The regulations refer to the following descriptions of waters:

- **Exposed Waters** - These normally include vessels on Oceans, Coastwise, or those portions of the Great Lakes, more than 20 miles from a harbor of safe refuge from October 1 of one year through April 15 of the next year (winter season).
 - **Partially Protected Waters** - Includes vessels on Lake Huron 3-20 miles offshore and not more than 20 miles from a harbor of Safe Refuge.
 - **Protected Waters** - Includes vessels on a lakes, bays, and sounds, or rivers route.
-

Required Manning

Introduction

The Commercial Vessel Safety Department evaluates each vessel and determines a safe manning level.

The vessel must have the required number of crew members on board while carrying passengers.

Master

All vessels are required to have a licensed master qualified for the type and tonnage of the vessel being operated.

Licensed Mate

A licensed mate is normally only required on a vessel engaged in voyages exceeding 12 hours in duration.

Senior Deckhand

In lieu of a required licensed mate, one of the required crewmembers may be designated as a senior deckhand.

This person must be designated in writing by the Master of the vessel. The senior deckhand must be familiar with the operation of the vessel and be capable of operating the vessel in the event of an emergency.

The Inspection Department has additional information concerning the training of a senior deckhand and can provide you with this information during the vessel's certification process

Required Manning *(Continued)*

Crewmembers

The following is provided as a reference.

Most "T" boats are required to have as a minimum of one crewmember in addition to the Master. In addition, a crewmember is normally required for each deck that is available to passengers.

The vessel will also be required to increase manning based on the number of passengers the vessel is carrying.

"T-Boats" are usually not required to carry any additional manning.

The table below shows that additional manning is required of vessels regulated by Subchapter K, since they can carry more than 150 passengers.

Passengers on board	Not more than 12 hours operation	More than 12 hours operation
0-149	0	0
150-299	1	2
300-499	2	4
500-799	3	6
800 & Up	4	8

Determining Maximum Passengers - 46 CFR 176.113 & 177.820

Introduction

The maximum number of passengers permitted is determined by using one of the following criteria.

- Length of rail.
- Deck area.
- Fixed Seating.

The method that provides for the greatest number of passengers may be used.

It is important to note that the maximum passengers may be limited by stability considerations.

Calculating

Different passenger capacity criteria may be used on each deck of a vessel and added together to determine the total passenger capacity of the vessel.

Where seats are provided on a part of a deck and not on another, the number of passengers permitted may be the sum of the number permitted by the seating criterion for the space having seats and the number permitted by the deck area criterion for the space having no seats.

The length of rail criterion may not be combined with either the deck area criterion or the fixed seating criterion when determining the maximum passengers permitted on an individual deck.

Length of Rail Criteria

One passenger is allowed for each 30 inches of rail.

Rail space in congested areas, on stairways, or in a location that would block the vision of operator of the vessel cannot be included.

Determining Maximum Passengers *(Continued)*

Deck Area Criteria

One passenger is allowed for each 10 square feet available for passenger use.

Areas occupied by the following shall be excluded:

- Concession stands.
- Toilet and washrooms.
- Companionways, stairway, etc.
- Spaces occupied by and necessary for handling lifesaving equipment.
- Spaces below deck not suitable for or not normally used by passengers.
- Interior passage ways less than 30 inches wide and passage ways on the open deck less than 18 inches wide.

Fixed Seating

One person per 18 inches of seat width.

Each sleeping berth in overnight accommodation spaces shall be counted as only one seat.

Fixed Seating Installations

Seating installations for passengers are required only when the number of passengers was determined by using the fixed seating criteria.

Seating must be arranged to allow for ready escape in the case of a fire or other casualty.

Aisles not over 15 feet long shall be 24 inches wide. Aisles over 15 feet long shall be 30 inches wide.

If seats are in rows the distance from seat front to seat back shall be not less than 30 inches.

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PLAN SUBMITTAL

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Submitting Plans - 46 CFR 177.202

Vessel Under Construction

The owner of a vessel requesting initial inspection for certification shall prior to the start of construction unless otherwise allowed submit, along with an application for inspection, at least 3 copies of the following plans to the Marine Safety Center:

- Outboard profile.
 - Inboard profile.
 - Arrangement of decks.
 - Midship section.
 - Survival craft embarkation stations.
 - Machinery installation, *including but not limited to:*
 - Propulsion and propulsion control, including shaft details.
 - Steering and steering control, including rudder details.
 - Ventilation diagrams.
 - Engine exhaust diagrams.
 - Electrical installation, *including but not limited to:*
 - Elementary one line diagram of the power system.
 - Cable lists.
 - Bill of materials.
 - Type and size of generators and prime movers.
 - Type and size of generator cables, bus tie cables, feeders, and branch circuit cable.
 - Power, lighting, and interior communication panel boards with number of circuits and rating of energy consuming devices.
 - Type of capacity of storage batteries.
 - Rating of circuit breakers and switches, interrupting capacity of circuit breakers, and rating and setting of over-current devices.
 - Electric plant load analysis.
 - Lifesaving equipment locations and installation.
-

Submitting Plans (Continued)

Vessel Under Construction (Continued)

- Fire protection equipment installation, *including but not limited to*:
 - Fire main system plans and calculations.
 - Fixed gas fire extinguishing system plans and calculations.
 - Fire detecting systems and smoke detecting system plans.
 - Sprinkler system diagram and calculations.
 - Portable fire extinguisher types, sizes and locations.
- Fuel tanks.
- Piping systems including: bilge, ballast, hydraulic, sanitary, compressed air, combustible and flammable liquids, vents, sounding, and overflows.
- Hull penetrations.
- Marine sanitation device model number, approval number, connecting wiring and piping.

For sailing vessels

- Masts, including integration into the ship's structure.
- Rigging plan showing sail areas and centers of effort as well as the arrangement, dimensions, and connections of the standing rigging.

Vessels Already Constructed

For vessels constructed prior to approval of the plans and information as required above, in addition to the above plans, additional plans and information, manufacturers' certifications of construction, testing including reasonable destructive testing, and inspections may be required to verify that the vessel complies with minimum construction requirements.

Sister Vessels

Plans are not required for a vessel that is a sister to one that is already certified, provided:

- Plans for the original vessel are on file with the Marine Safety Center or our department vessel files.
 - The owner of the plans authorizes their use.
 - The regulations used for the original plan approval have not changed since the original approval.
 - There are no major changes to the systems to be used.
-

General Requirements for Plans

Introduction

All plans submitted for approval should have the following information marked on them:

- Vessel name.
 - Official number.
 - Route.
 - Scale: *i.e.* ____ inches = ____ feet.
 - Plan identification.
 - Builder/Shipyard.
 - Hull identification number.
-

Helpful Ideas

- Use of graph paper is recommended.
 - Scaled drawings are preferred.
 - List dimensions, measurements, & specifications.
 - Photos if large enough that show sufficient detail may be submitted in addition to plans.
 - Abbreviations may be used if they are defined or explained and clear to the reviewing officer.
-

Midship Section

Description Midship Section and other Sections showing construction details:

- (1) Amidships.
- (2) Bow at the collision bulkhead (*see page F-3*).
- (3) Immediately forward of the deckhouse.
- (4) Transom.

Where a vessel is to carry more than 49 passengers, the section views should also show the construction of the watertight bulkheads. Specify species of wood, grade of steel or aluminum, welding procedure and rod. All the dimensions are to be finished sizes.

Construction Details Construction details are to show deck and hull plating or planking, and structural members including:

- Keel.
- Planking.
- Sheer clamps.
- Bilge stringers.
- Deck beams.
- Columns.
- Frames.
- Floors.
- Chine (if hard chine).
- Engine beds.
- Fuel tank supports.
- Fuel tank installation.

Fastenings The means of fastenings to include:

- Type.
 - Size.
 - Material of fastening.
 - Weld design.
-

Midship Section (Continued)

Fiberglass Reinforced Plastic

The layup of the hull must be shown in detail, information including:

- Size, type and manufacturer of **woven roving**.
- Size, type and manufacturer of **mat**.
- Type and manufacture of **resin**.
- Layup schedule.
- Joint details.
- Burnout test results.
- Tensile test results.

Fire retardant resins are recommended. If fire retardant resins are not used additional requirements for fixed fire fighting systems and restrictions from overnight accommodations will be required.

Summary

Drawings must clearly show the details of the vessel.

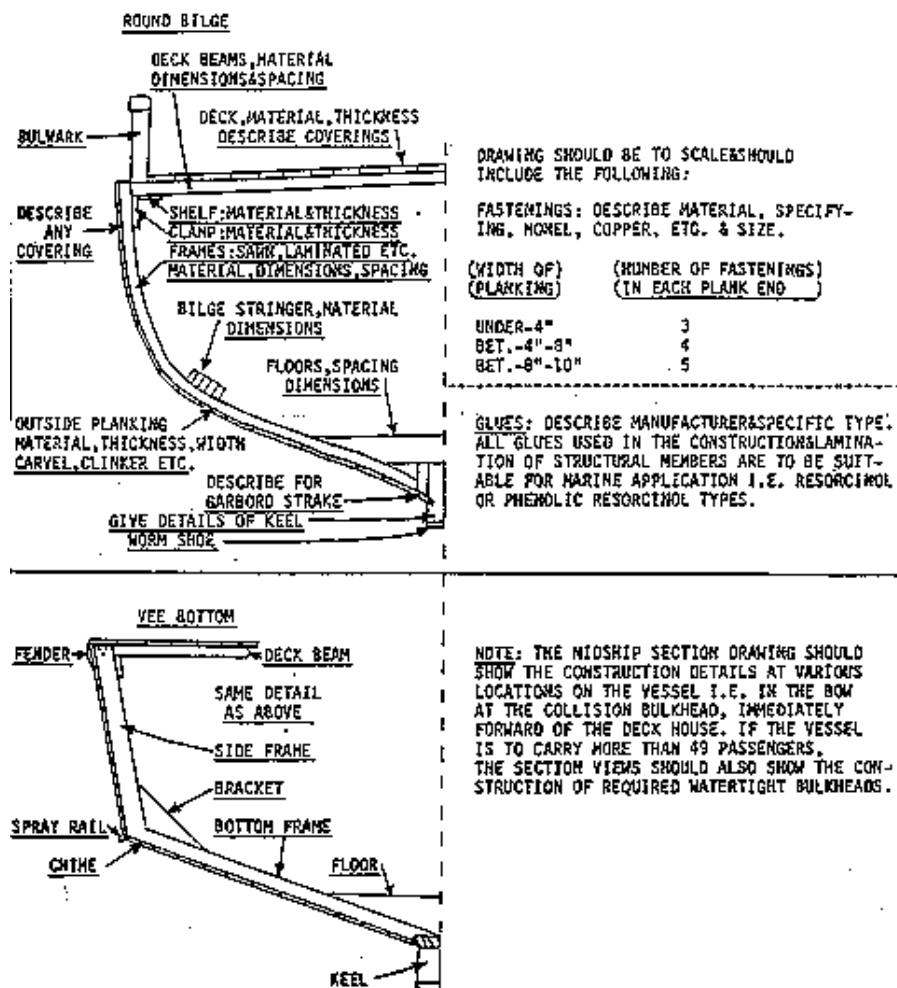
Plans submitted to the MSC will be reviewed and, if approved, one copy will be kept at the MSC, one copy forwarded to the OCMI, and one copy returned to the submitter.

Plans returned for revision must be corrected in accordance with the comments made in the MSC letter sent with the plans. Make all corrections as listed and ensure to address all comments, with explanations if comments were not incorporated.

Plans which are too small, indecipherable, incomplete or overly sloppy will not be reviewed.

Midship Section (Continued)

Example



Outboard Profile

Information to be Included

The outboard profile must show the exterior view of the vessel as it appears or will appear when completed.

This view should show in solid outline the:

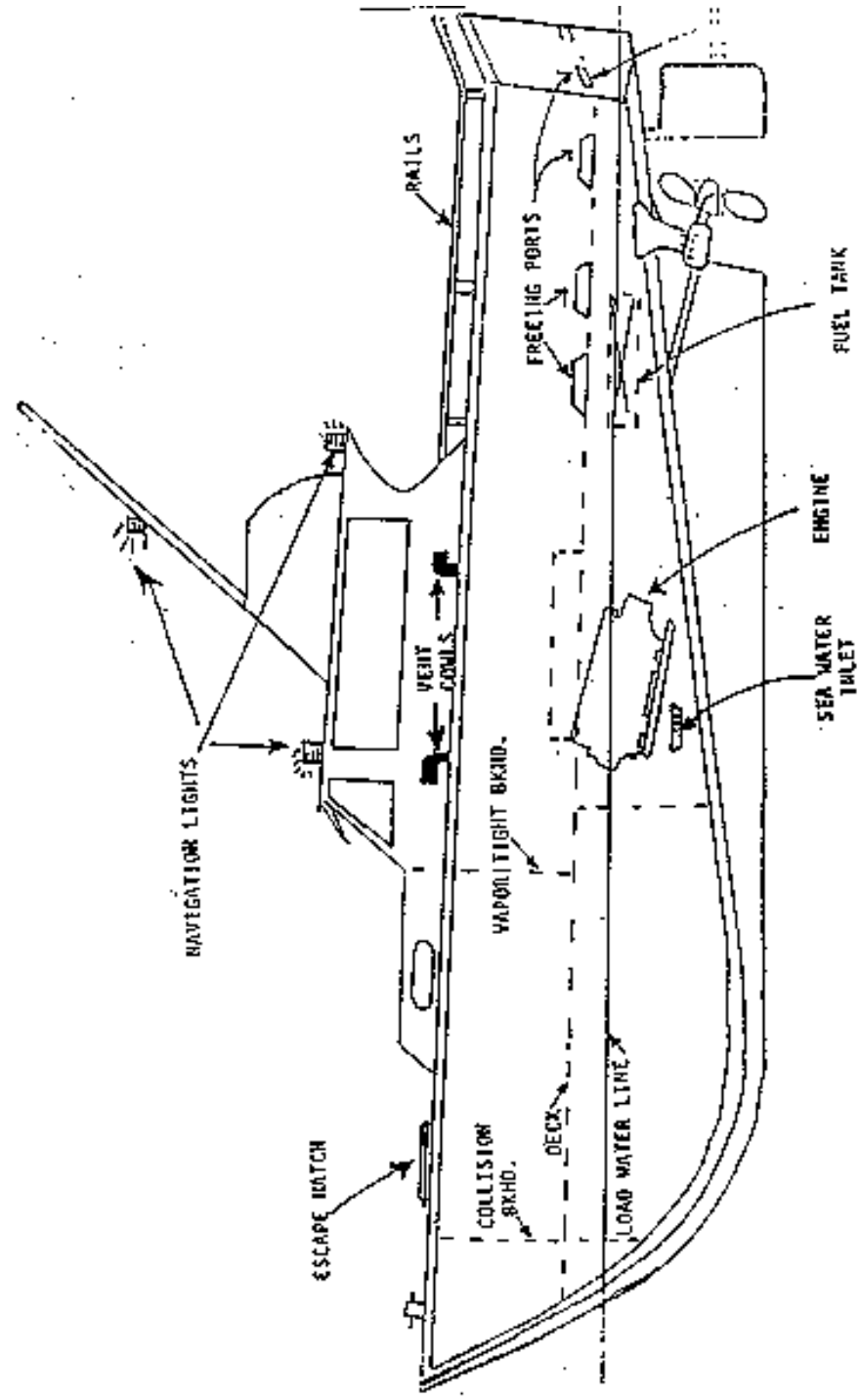
- Deckhouse.
- Rudders.
- Shafts.
- Deck scuppers.
- Port lights.
- Bulkheads.
- Safety rails.
- Openings into the hull and deckhouse.
- Keel.
- Propellers.
- Struts.
- Freeing Ports.
- Ventilation cowls.
- Navigation lights.
- Estimated load waterline.

Dotted lines should show the outline of:

- Decks.
 - Engines.
 - Watertight hatches.
 - Means of escape.
 - Bulkheads.
 - Fuel tanks.
-

Outboard Profile (Continued)

Example



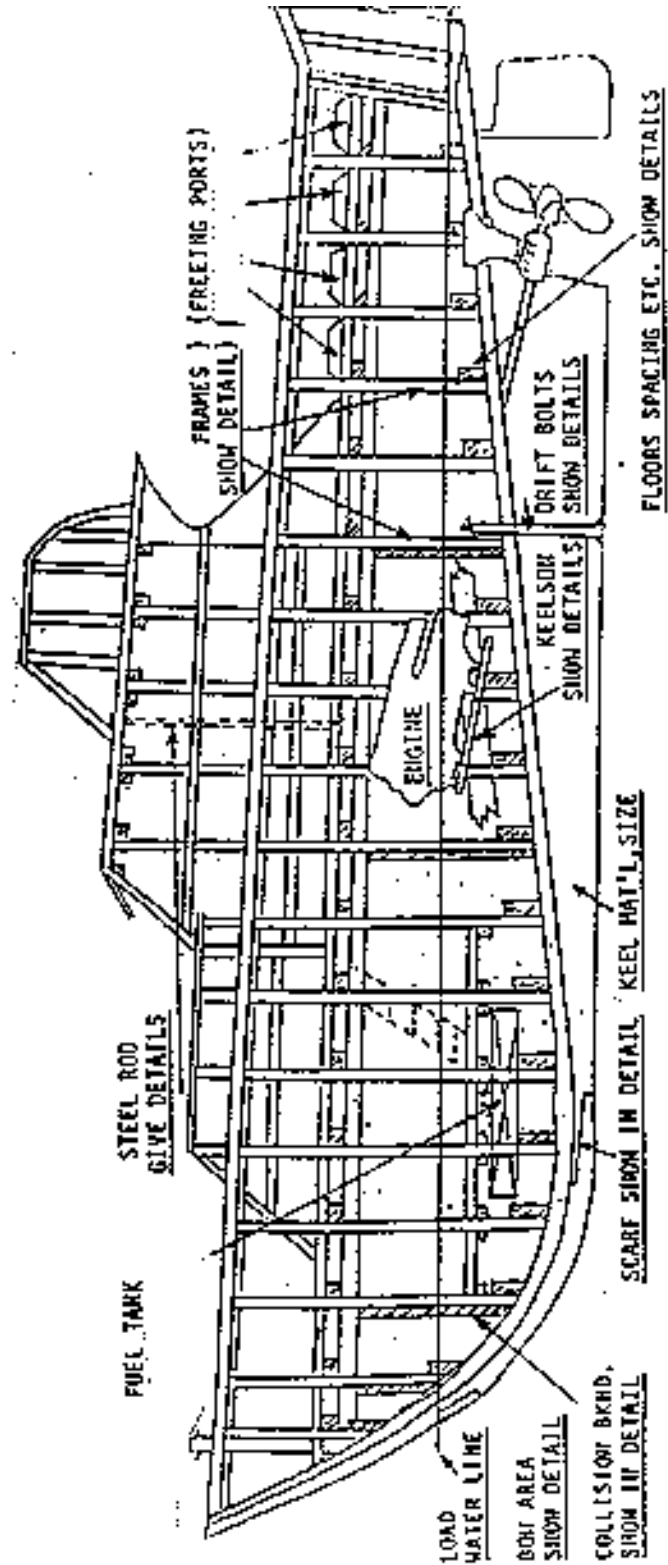
Inboard Profile

Information to be Included

The inboard profile plan must show those internal structural members as listed under the midship sections and in addition the type of material used in construction (*species, in the case of wood*), location of decks, hatches, fuel tank, and engines.

Inboard Profile (Continued)

Example



Arrangement of Decks

Information to be Included

Plan view of various decks are to show the locations of :

- All watertight and non-tight bulkheads.
- Arrangements of all compartments.
- All permanent installed equipment.
- All portable installed equipment.

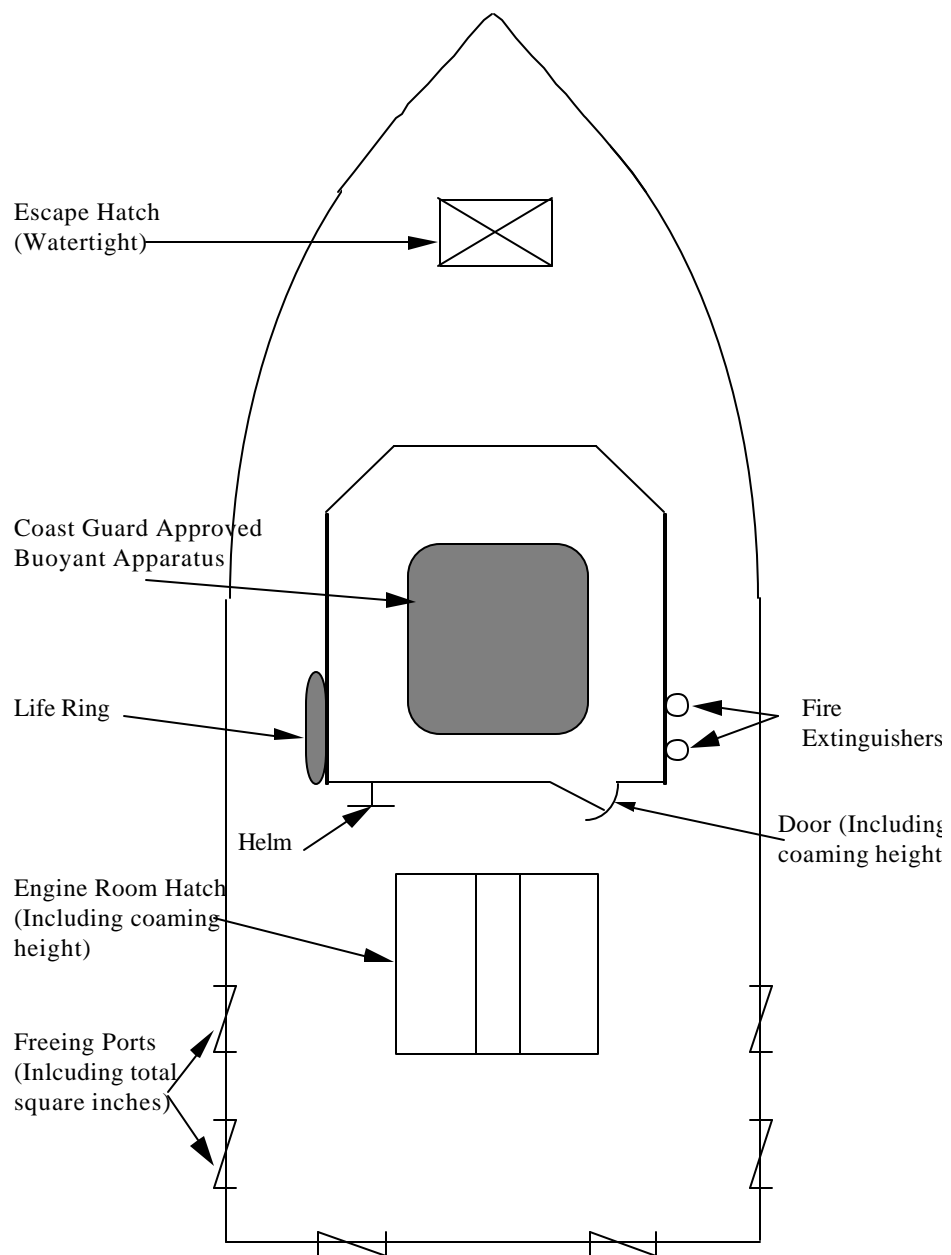
These will include:

- Toilet areas.
- Pilothouse.
- Hatches.
- Doors.
- Portable fire extinguishers.
- Fixed fire extinguisher systems.
- Primary life saving equipment.
- Freeing ports.
- Galley.
- Accommodation spaces.
- Ladders.
- Windows.

Provisions for ventilating all spaces including machinery and fuel tank spaces should also be shown.

Arrangement of Decks (Continued)

Example



Machinery Installation

Information to be Included

Plans should show in detail the installation of propulsion and auxiliary machinery including:

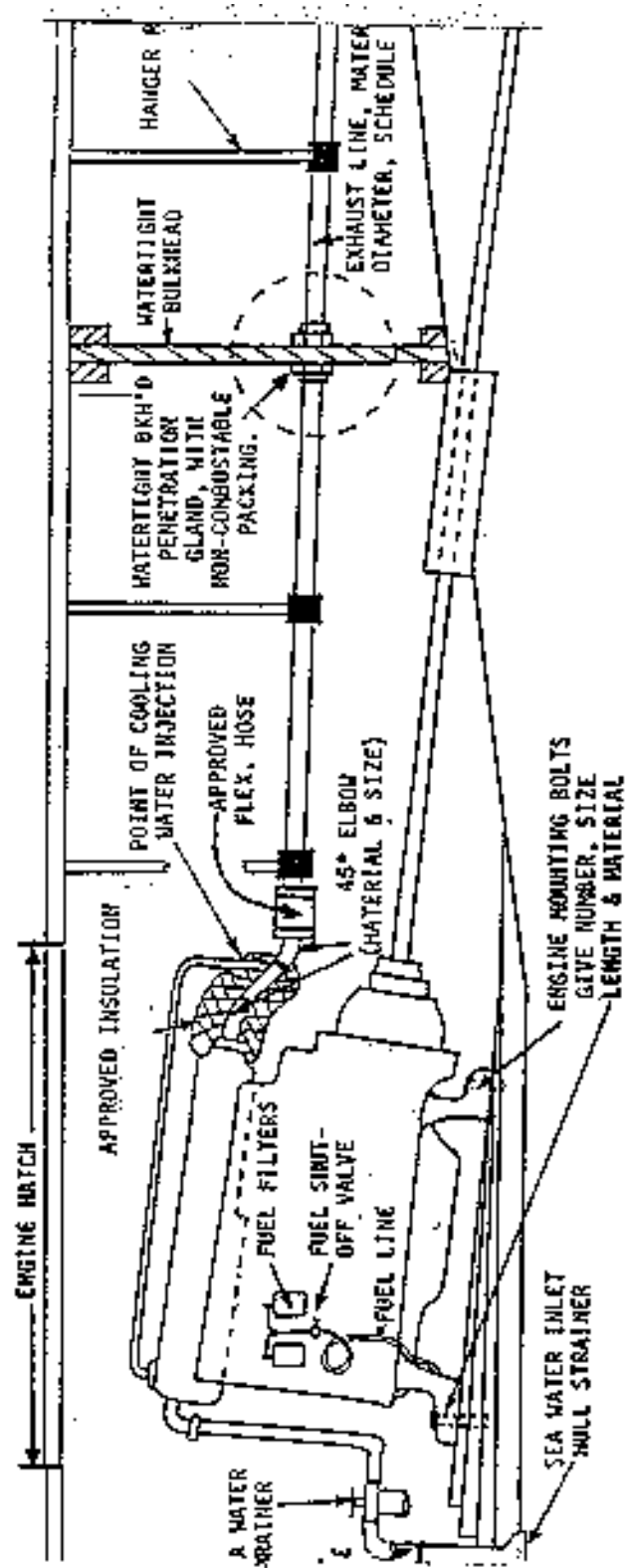
- Descriptions.
- Ratings.
- Locations.

Of particular concern are:

- Propulsion machinery.
 - Auxiliary generators.
 - Steering systems.
 - Pressure vessels.
 - Boilers.
 - Heating equipment.
 - Davits on cranes.
 - Machinery space ventilation.
-

Machinery Installation (Continued)

Example



Electrical Installation

Information to be Included

The electrical system plan should be a schematic drawing which shows all the electrical installations.

All cables must be identified by:

- Type.
- Size.
- Number of conductors.
- Approximate length of run.

The plan must show all system components to include:

- Batteries.
- Regulators.
- Light fixtures.
- Gauges.
- Ground Systems.
- Transformers.
- Inverters.
- Rectifiers.
- Size of all loads.
- Generators.
- Disconnect switches.
- Overload protection.
- Distribution panels.
- Cooking Equipment.
- Emergency lighting.
- Heating Equipment.
- Shore Connections.
- Independent motors.

Name-plate data and rating for each component must be included.

Equipment installed in machinery spaces must be rated for service at an ambient temperature of 50 degrees C.

Voltage Requirements

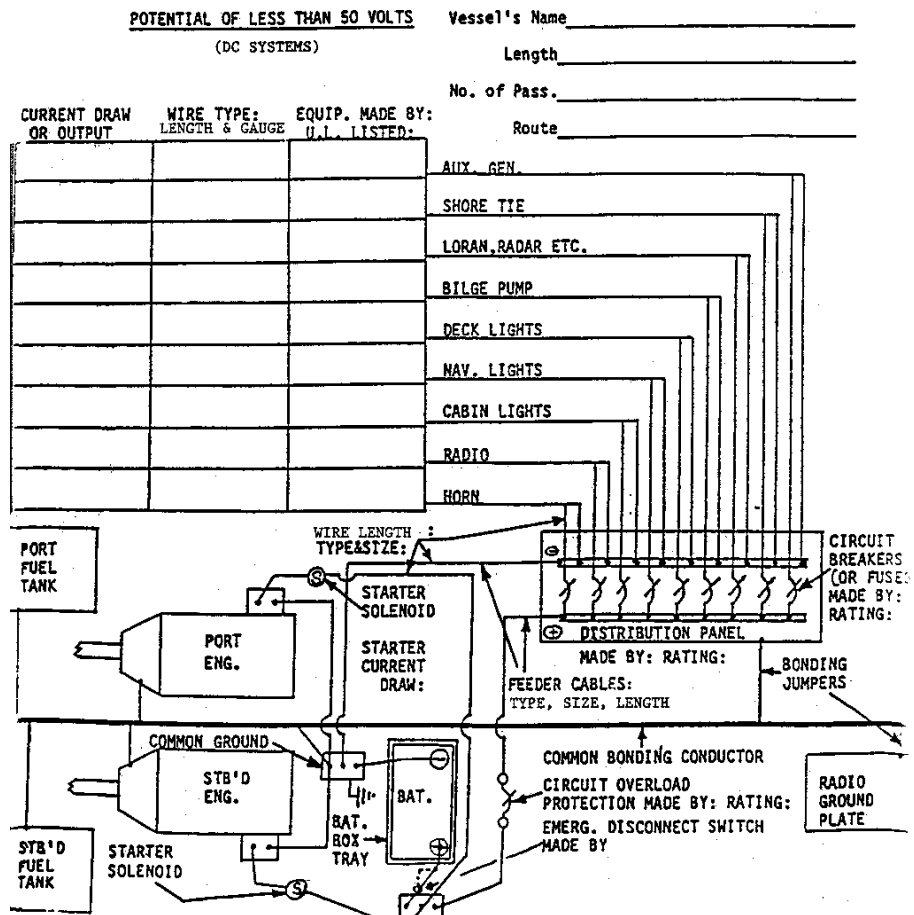
Regulations regarding electrical systems are divided into two different sets of requirements as listed below.

Systems operating at potentials:

- Less than 50 volts - 46 CFR 183.05.
 - 50 volts. or more - 46 CFR 183.10.
-

Electrical Installation (Continued)

Example



Fuel Tanks

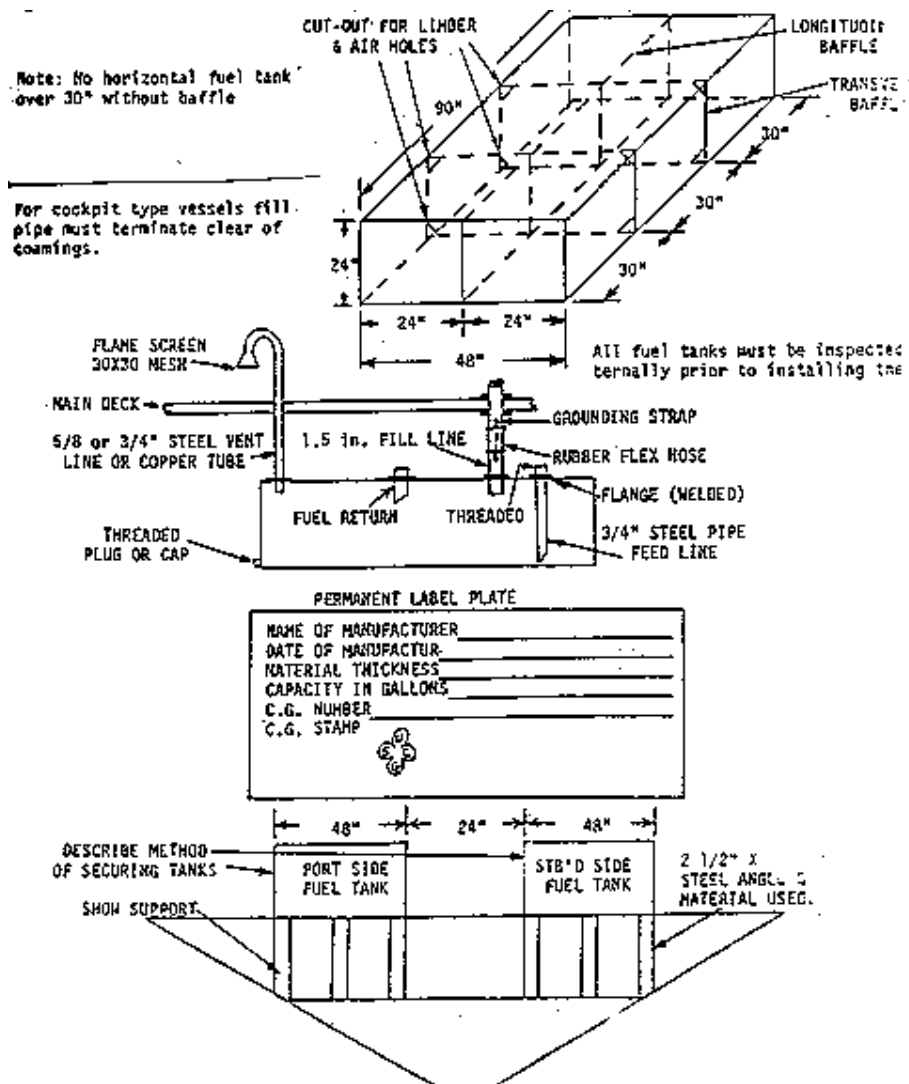
Information to be Included

Plans must show:

- Dimensions.
 - Capacity.
 - Thickness of material.
 - Type of material.
 - Method of assembly.
 - Location of baffles.
 - Connection of vent, fill and supply lines.
 - Means of securing tanks to prevent movement.
-

Fuel Tanks (Continued)

Example



Piping Systems

Information to be Included

Plans must show all piping systems including:

- Engine cooling.
- Ballast.
- Fuel.
- Drinking water.
- Exhaust cooling.
- Bilge.
- Hydraulic.
- MSD* system.

All component parts of each system are to be shown, including:

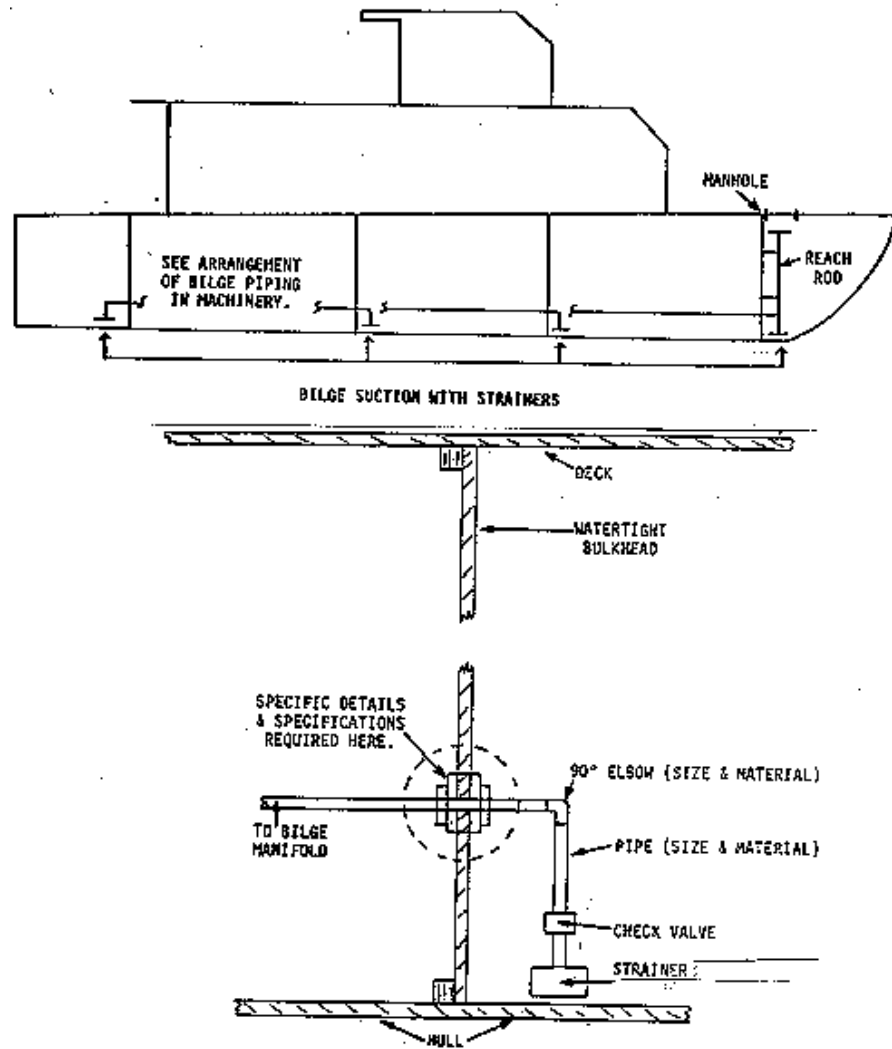
- Piping size.
- Valves.
- Filters.
- Flexible fuel hose.
- Piping material.
- Pumps.
- Strainers.

The length of flexible fuel hose, model number and manufacture must be listed and must be Coast Guard approved. Flexible hose may not be longer than 30 inches.

* *Marine Sanitation Device.*

Piping Systems (Continued)

Example



Bulkhead and Deck Penetrations, and Shell Connections

Information to be Included

Complete details of all piping and cable penetrations and all through-hull fittings must be submitted.

Drawings must show:

- Material specification for fittings.
- Method of installation.
- Location of valves.
- Methods of sealing penetrations..

Inclusion of these details on other plans instead of a separate plan is acceptable.

Skin Valves

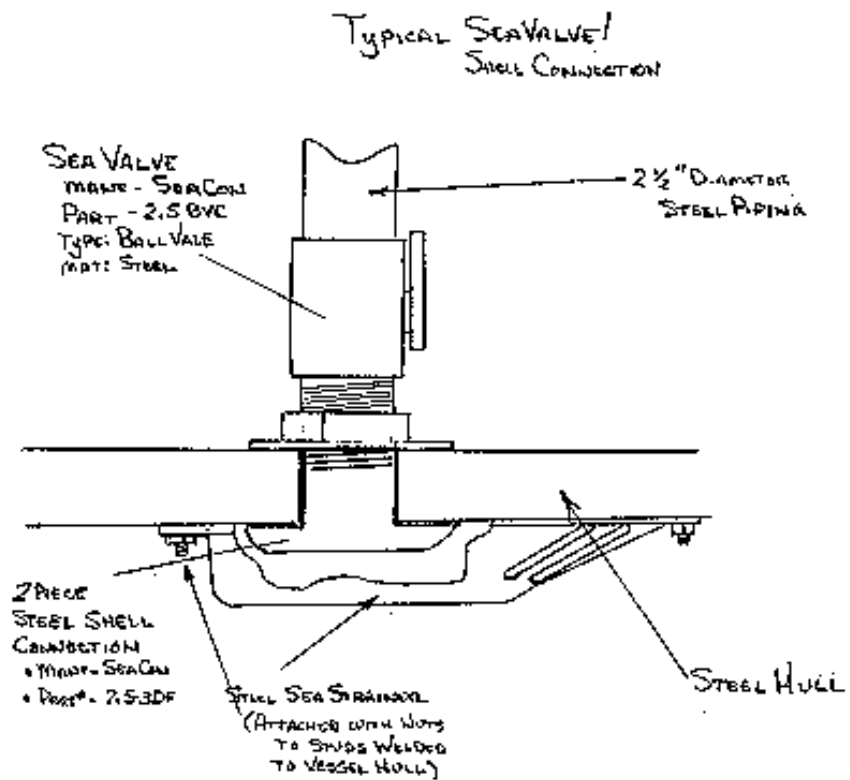
All shell connections within six inches of the waterline and below are required to be fitted with a sea valve.

Sea valves and shell connections are required to be metal.

In the case of non-metallic hull, materials that can be demonstrated to afford an equal degree of strength and heat resistivity as that of the hull may be considered on a case-by-case basis.

Bulkhead and Deck Penetrations and Shell Connections (Continued)

Example



SECTION C

LIFE SAVING EQUIPMENT REQUIREMENTS

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Life Preservers - 46 CFR 180.71 - 180.78

Type Required	Only Type I life preservers with Coast Guard Approval Numbers 160.002, 160.005 and 160.055 are approved for passenger carrying vessels.
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Quantity Required	<p>One adult type life preserver is required for each person aboard the vessel.</p> <p>In addition, unless the service is such that children are never carried, there shall be provided a number of approved life preservers suitable for children equal to at least <i>10% of the number of adult life preservers</i> required to be carried. If the number of children carried exceeds the 10% number, then additional child size life jackets must be carried so that each child has an appropriate size life preserver.</p>
--------------------------	---

A child is any person weighing less than 90 lbs.

Markings	Each life preserver must be marked with the vessel's name.
-----------------	--

Reflective Material	Each life preserver must have at least 31 square inches of reflective material attached on its front side, and 31 square inches on its back side, and the same corresponding material on each of its reversible sides.
----------------------------	--

Life Preservers - (*Continued*)

Lights

Vessels with Great Lakes, Oceans or Coastwise routes are required to have a light attached to each life preserver. The light must meet CG approval number 161.012.

If the light is battery powered the battery must be changed when the battery date has expired or if not marked shall be changed annually at each COI or Reinspection.

Whistles

Vessels with international routes are also required to carry a whistle. The whistle must be SOLAS approved.

Stowage

Life preservers shall be distributed throughout the accommodation spaces in protected places convenient to the persons on board.

Each stowage container must not be capable of being locked. If practicable the container must be designed to allow the life jackets to float free.

If life jackets are stowed more than 7 feet above the deck, a means for quick release of operation by a person standing on the deck must be provided.

If life preservers are not readily visible to the passengers, the containers in which they are stowed shall be marked "Life Preservers" with the number contained therein, in at least *1-inch* letters.

Children's life jackets must be labeled and stowed separate from adult life preservers, so that child life jackets are not mistaken for adult life jackets.

The straps for the lifejackets should not be wrapped around the lifejacket and clipped or tied; in an emergency this could hamper the donning of the lifejacket.

Survival Craft 46 CFR 180.200 - 180.208

Type Required

A sufficient number of life floats or inflatable buoyant apparatus must be carried as required by the chart below.

Inflatable Buoyant Apparatus and Life Floats are required to be marked with CG Approval numbers. Inflatable life rafts of 6 person or greater can be substituted for either.

For Great Lakes routes use the Limited Coastwise Route section for guidance. Historically Saginaw Bay, and the rivers in the Detroit area are considered warm waters from Memorial Day to the end of September.

Quantity Required

Route	Water Temp	Vessel Constructed of	Subdivision	Floatfree 406 EPIRB	Survival craft required
Oceans Route	cold water	_____	without subdivision	_____	100% Inflatable Bouyant Apparatus
			with subdivision	_____	100% Life Floats
	warm water	_____	_____	_____	67% Inflatable Bouyant Apparatus
Coastwise Route	cold water	wood	without subdivision	_____	67% Inflatable Bouyant Apparatus
		other than wood	with subdivision	_____	100% Life Floats
	_____		_____	100% Life Floats	
	warm water		_____	_____	_____
Coastwise Route Not more than 3 miles from shore	_____	_____	without subdivision	without EPIRB	100% Life Floats
				with EPIRB	50% Life Floats
			with subdivision		50% Life Floats
Limited Coastwise Route	cold water	wood	without subdivision		67% Inflatable Bouyant Apparatus
		other than wood	with subdivision		100% Life Floats
	_____			100% Life Floats	
	warm water		_____	_____	
Limited Coastwise Route Not more than 3 miles from shore	cold water	_____	without subdivision	without EPIRB	100% Life Floats
				with EPIRB	50% Life Floats
			with subdivision		50% Life Floats
	warm water	_____	without subdivision	without EPIRB	50% Life Floats
				with EPIRB	None
			with subdivision		None
Lakes, Bays, & Sounds	cold water	wood	without subdivision	_____	100% Life Floats
		other than wood	with subdivision	_____	50% Life Floats
	_____		_____	50% Life Floats	
	warm water		_____	_____	_____
Not more than 1 mile from shore	_____	_____	_____	_____	None
Rivers	cold water	_____	without subdivision	_____	50% Life Floats
			with subdivision	_____	None
	warm water	_____	_____	_____	None

Survival Craft *(Continued)*

Vessels on International Routes

Vessels on international routes are required to have life rafts or inflatable buoyant apparatus of sufficient total capacity to carry 100% of the persons on board.

Wooden Vessel

A wooden vessel for the purposes of subdivision and lifesaving equipment requirements in this section are a traditionally-built, plank-on-frame vessel where mechanical fasteners (screws, nails, trunnels) are used to maintain hull integrity.

Markings

Each life float or inflatable buoyant apparatus must be marked with the vessel's name and number of persons allowed on each.

They shall be conspicuously marked or painted in letters and numbers at least 1-1/2 inches high.

Paddles

Each life float must be provided with two **paddles** not less than 4 feet long and must be lashed to the life float to which they belong.

Water Light

Each life float must be fitted with a **water light**, CG approval 161.010. It must be attached with a 12 thread manila or equivalent synthetic lanyard, at least 18 feet long.

Survival Craft *(Continued)*

Painter

Each life float or inflatable buoyant apparatus must be fitted with a **painter** 100 feet long.

- The painter must have a breaking strength of at least 1500 lbs, except that if the capacity of the life float or inflatable buoyant apparatus is 50 persons or more the breaking strength must be at least 3,000 lbs.
- If synthetic, the painter must be of a dark color and certified to be resistant to deterioration from ultraviolet light.
- The painter must be stowed in such a way that it runs out freely when the life float or inflatable buoyant apparatus floats freely away from the sinking vessel.

Note that if the vessel carries more than one life float, they may be grouped together to a single painter provided the combined weight of each group does not exceed 400 lbs. Each life float must be attached to the painter with line of equivalent strength as that required for the painter and of sufficient length so that each can float without contacting another life float.

Weak Link

The painter must be attached to the vessel with a **weak link** of the proper strength for the size of the life float(s) or inflatable buoyant apparatus.

Annual Servicing

Inflatable Buoyant Apparatus are required to be serviced by an authorized servicing facility annually.

Ring Life Buoys *46 CFR 180.70*

Type Required

Ring life buoys must meet CG approval 160.050. Those ring life buoys used on an Oceans or Coastwise route must be orange.

All ring life buoys must be a minimum of 24 inches in diameter, except that vessels less than 26 feet long may use one ring life buoy of not less than 20 inches in diameter.

Quantity

A vessel of not more than 65 feet in length is required to carry one ring life buoy. The ring life buoy must have attached a buoyant line.

A vessel greater than 65 feet in length is required to carry 3 ring life buoys; one shall be fitted with a buoyant line.

Markings

Each ring life buoy must be marked with the name of the vessel.

Each ring life buoy must be marked with retro-reflective material.

Water Lights

Each vessel must carry one water light, which meets CG approval 160.010, unless the vessel is restricted to daylight operations.

Each water light must have a lanyard attaching it around the body of the ring life buoy of at least 3 feet and no longer than 6 feet.

On a vessel carrying only one ring life buoy, the water light must be attached to the lanyard with a corrosion resistant clip. The clip must have a breaking strength of at least 50 pounds, to allow the waterlight to be quickly disconnected from the ring buoy.

Ring Life Buoys (*Continued*)

Buoyant Line

The buoyant line attached to the ring buoy must be:

- At least 60 feet in length.
 - Buoyant.
 - Non-kinking.
 - A diameter of at least 5/16".
 - A breaking strength of at least 1,124 pounds.
 - A dark color if synthetic, or of a type certified to be resistant to deterioration from ultraviolet light.
-

Stowage

Ring life buoys must be stowed so as to:

- Be readily accessible.
 - Be stowed in a way that they can be rapidly cast loose.
 - Not be permanently secured in any way.
-

Pyrotechnic Distress Signals *46 CFR 180.68*

General Requirements

Pyrotechnic distress signals are required on all small passenger vessels, except those on short runs of less than 30 minutes.

Pyrotechnic signals are marked with an expiration date and must be replaced at the first COI or reinspection after the date the flare has expired.

Number Required

Vessels on Lakes, Bays and Sounds, or Rivers routes are required to carry three hand red flare distress signals and three orange smoke distress signals.

Vessels on Great Lakes, Oceans or Coastwise routes are required to carry six hand red flare distress signals and six orange smoke distress signals.

Stowage Requirements

The flares are required to be stored in a portable watertight container of bright color, marked in legible contrasting color in at least 1/2" letters, "DISTRESS SIGNALS."

As an alternative the signals may be stored in a pyrotechnic locker located above the freeboard deck, away from heat, in the vicinity of the operating station.

Emergency Position Indicating Radio Beacon (EPIRB) 46 CFR 180.64

General Requirements

Vessels that operate on the high seas, or that operate beyond three miles from the coastline on the Great Lakes must have on board a Category I, 406 mhz EPIRB.

The battery installed in the EPIRB must be replaced on or before its expiration date.

Stowage Requirements

The EPIRB must be stowed in a location:

- In the armed position.
- Readily accessible for testing and use.
- Installed so it will automatically float free and activate.
- If a hydrostatic release is provided as the float free device it must be changed when expired.

Markings

The EPIRB must be clearly marked with the vessels name.

A NOAA registration sticker must be affixed to the EPIRB.

Rescue Boat 46 CFR 180.210

General Requirements

Vessels greater than 65 feet in length are required to have a rescue boat unless it is determined that:

- The vessel is sufficiently equipped to allow the crew to recover a helpless person from the water.
- Recovery of a helpless person can be observed from the operating station.
- The vessel does not regularly engage in operations that restrict its maneuverability.

Vessels of not more than 65 feet are not required to carry a rescue boat unless the vessel carries passengers on an open or partially enclosed deck and the OCMI determines that the vessel is designed, arranged, or involved in operations so that the vessel itself cannot serve as an adequate rescue craft.

Acceptable Rescue Boats

In general, a rescue boat must be a small, lightweight boat with built-in buoyancy and capable of being readily launched and easily maneuvered.

In addition, it must be of adequate proportion to permit taking an unconscious person on board without capsizing.

On a vessel of more than 65 feet in length operating on *protected waters* a rescue boat approved under approval series **160.056** is acceptable.

On a vessel of more than 65 feet in length operating on *exposed or partially protected waters* a rescue boat approved under approval series **160.151** is acceptable.

On a vessel of not more than 65 feet in length, the rescue boat must be acceptable to the OCMI.

SECTION D

FIRE FIGHTING AND DETECTING EQUIPMENT REQUIREMENTS

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Power Driven Fire Pumps - 46 CFR 181.300

General Requirements

A self-priming, power driven fire pump is required on the following mechanically propelled small passenger vessels:

- A vessel \leq 65 feet that is a ferry.
- A vessel \leq 65 feet carrying more than 49 passengers.
- All vessels $>$ 65 feet

Vessels not required to have a power driven fire pump must have at least three (2 1/2 gallon) buckets. Each bucket must have:

- A lanyard attached.
- Be stenciled in a contrasting color "FIRE BUCKET."

Fire Pump Requirements

The pump may be driven off of a propulsion engine or other source of power and must be permanently connected to the fire main. This pump may also be connected to the bilge system so that it can serve as a fire pump and a bilge pump.

- Vessels \leq 65 feet carrying more than 49 passengers and all vessels $>$ 65 feet:
 - Minimum fire pump capacity 50 gallons per minute.
 - Minimum pressure at the pump outlet 60 psi.
 - Pressure gauge fitted at the pump outlet.
 - A vessel \leq 65 feet that is a ferry carrying not more than 49 passengers:
 - Minimum fire pump capacity 10 gallons per minute.
 - Pump must be capable of projecting a stream from the highest hydrant through the hose and nozzle a minimum distance of 25 feet.
-

Fire Main System - 46 CFR 181.310 - 181.320

General Requirements

All vessels required to have a power driven fire pump are required to have a fire main.

Piping used in the fire main system must constructed of ferrous materials.

Fire hydrants for all vessels shall be of sufficient number and so located that any part of the vessel may be reached with an effective stream of water from a single length of hose.

A length of fire hose will be attached to each hydrant at all times.

Fire Hoses and Nozzles

- Vessels \leq 65 feet carrying more than 49 passengers and all vessels $>$ 65 feet:
 - Fire hose must be commercial grade 1-1/2 inch lined fire hose (UL 19 approved), or equivalent:
 - * Fire hose must be 50 feet in length.
 - * Having fittings of brass or other corrosion resistant material.
 - The nozzle must be of a type approved in accordance with CG approval 162.027.
 - A vessel \leq 65 feet that is a ferry carrying not more that 49 passengers:
 - Fire hose and nozzle may be as required above, or a Garden hose that is:
 - * Good commercial grade, constructed with inner rubber tube, plies of braided fabric and outer rubber or equivalent cover.
 - * Sufficient strength to withstand maximum pressure of the fire pump.
 - * All fitting on hose must be of suitable corrosion resistant material.
 - Nozzle:
 - * Capable of being changed between solid stream and spray pattern.
 - * Corrosion resistant material.
-

Fixed Gas Fire Extinguishing Systems - 46 CFR 181.400 - 181.420

General Requirements

A fixed gas fire extinguishing system must be installed in the following locations on all vessels:

- A space containing propulsion machinery.
- A space containing an internal combustion engine of more than 50 hp (37.3 kw).
- A space containing machinery powered by gasoline or other fuels having a flash point of 110°F or lower.
- A space containing fuel tanks for gasoline or any other fuel having a flash point of 110°F or lower.
- Cargo spaces which are inaccessible during a voyage and used for combustible cargo. (*Only CO2 will be allowed*).
- A paint locker.
- A storeroom containing flammable liquids (*including liquor of 80 proof or higher where liquor is packaged in individual containers of 9.5 liter (2.5 gallons) capacity or greater*).

Type System Required

Fixed gas fire extinguishing systems shall be approved by the Commandant and installed to the satisfaction of the OCMI.

Depending on the application, acceptable systems include CO₂, or pre-engineered automatic discharge systems.

Fixed Gas Fire Extinguishing Systems - *(Continued)*

Amount of CO₂ Gas Required

The quantity of CO₂ that is required can be calculated by determining the gross volume of the space and dividing by the factor listed in the chart below:

Factor	Gross volume of compartment (cubic feet)	
	Over-	Not over-
15	- - - - -	500
16	500	1,600
18	1,600	4,500
20	4,500	50,000
22	50,000	- - - - -

Additional Requirements

46 CFR 181.410 prescribes the specific system requirements.

We strongly recommend you obtain a copy of the regulations before installing a fixed gas fire extinguishing system.

Portable Fire Extinguishers - 46 CFR 181.500

General Requirements

The minimum number of portable fire extinguishers required shall be determined by using the table below:

Space Protected	Minimum Number Required	Type Extinguisher permitted		
		CG Class	Medium	Minimum Size
Operating Station	1	B-I, C-I	Halon Carbon dioxide Dry chemical	2.5 Pounds 4 Pounds 2 Pounds
Machinery Space	1 for each	B-II, C-II located just outside exit	Carbon dioxide	15 Pounds
Open Vehicle Deck	1 for every 10 vehicles	B-II	Foam Halon Carbon dioxide Dry chemical	2.5 Gallons 10 Pounds 15 Pounds 10 Pounds
Accommodation Space	1 for each 250 square feet or fraction thereof	A-II	Foam Dry chemical	2.5 Gallons 5 Pounds
Galley, Pantry, Concession Stand	1 for each	A-II, B-II	Foam Dry chemical	2.5 Gallons 10 Pounds

Extinguishers must be UL approved for marine use and must be mounted on the approved marine mounting bracket.

Location

Extinguishers must be located so they can be easily accessible for the space protected.

Fire Axe - 46 CFR 181.600

General Requirement

Each vessel more than 65 feet in length is required to be equipped with one fire axe.

The fire axe must be located in or adjacent to the pilothouse.

Fire and Smoke Detection Systems - 46 CFR 181.40 & 181.450

General Requirement

The following spaces must be fitted with a **fire detecting system**, except when the space is protected by a fire extinguishing system that is capable of automatic discharge upon heat detection, or if the space is manned:

- A space containing propulsion machinery.
- A space containing an internal combustion engine of more than 50 hp (37.3 kw).
- A space containing an oil fired boiler.
- A space containing machinery powered by gasoline or other fuels having a flash point of 110°F or lower.
- A space containing fuel tanks for gasoline or any other fuel having a flash point of 110°F or lower.

Smoke Detecting System

Each overnight accommodation space on a vessel with overnight accommodations for passengers must be fitted with an **independent modular smoke detecting and alarm unit**.

The unit must be:

- UL Standard 217 and be listed as a "Single Station Smoke Detector-Also suitable for use in Recreational Vehicles".
 - Contain an independent power source.
 - Alarm on low power.
-

SECTION E

VESSEL CONTROL REQUIREMENTS

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Compass - 46 CFR 184.402

General Requirements

All vessels, except for those listed below, are required to have installed a suitable magnetic compass designed for marine use, mounted at the primary operating station.

A suitable compass is one that is correctly adjusted for deviation and has a deviation table. The deviation table should be updated at least every five years.

Except on a vessel limited to daylight operations, the compass must be illuminated.

The following vessels need not be fitted with a compass:

- Vessels in river service.
 - Non-self propelled vessels.
 - Vessels operating in protected waters with short restricted routes.
-

Radars - 46 CFR 184.404

General Requirements

A vessel must be fitted with a FCC accepted general marine radar system for surface navigation with a radar screen mounted at the primary operating station if all of the following apply:

- The vessel is self propelled;
- The vessel has an Oceans, Coastwise, Great Lakes or Limited Coastwise route, and;
- The vessel carries more than 49 passengers.

The radar and its installation must be suitable for the intended speed and route of the vessel.

A ferry is required to have a radar if it carries more than 49 passengers and operates more than 1 mile from shore.

Electronic Position Fixing Device - 46 CFR 184.410

General Requirements

All vessels on an Oceans route are required to be equipped with an electronic--position fixing device such as Loran or GPS capable of providing an accurate fix for the area in which the vessel operates.

Radios - 46 CFR 184.502

General Requirements

Radiotelephones are required to be installed as listed below:

If vessel route is:	Then vessel is required:
Less than 1,000 feet from shore	None
1000' from shore to 20 nautical miles from shore	VHF-FM
Greater than 20 miles from shore	VHF-FM and Single Side Band

The installation of all radiotelephones shall be in accordance with Federal Communication Commission (FCC) regulations.

Licenses

The vessel Master must hold a **2nd or 3rd class FCC Operators License** if the vessel has a radiotelephone.

The vessel must be issued an **FCC Station License** for any of the following if installed on the vessel:

- Radiotelephones.
- Radars.
- EPIRBS.

The vessel must have a FCC Great Lakes Agreement.

The vessel must also have on board a valid **Safety Radio Telephony Certificate** that is issued by the FCC to prove proper installation of the radio transmitting equipment.

Emergency Broadcast Placard

A durable placard must be posted next to all radiotelephone installations with emergency broadcast instructions and information specific to the individual vessel.

Specific instructions for the wording of the Emergency Broadcast Placard can be found in 46 CFR 184.510.

Sound Signals - *Navigation Rules (Comdtinst M16672.2B)*

- Rules 32 & 33

General Requirements

Vessels 12 meters (39.4 feet) in length and over shall be provided with a whistle and a bell.

Vessels less than 12 meters are not required to have a whistle or bell but shall have some means of making an efficient sound signal.

Whistle

The whistle shall be capable of being operated from the vessel's control station and sound as listed in the table below.

Length of Vessel		Fundamental Frequency Range (Hz)	Audibility Range in (Nautical Miles)
Meters	Feet		
12m or more but less than 20m	39.4' or more but less than 65.6'	250-525	.5
20m or more but less than 75m	65.6 or more but less than 246.1'	250-525	1.0
75m or more but less than 200m	246.1' or more	130-350	1.5

Bell

The bell shall be made of corrosion resistant material and designed to give a clear tone. Use the chart below to determine the minimum size required.

Length of Vessel		Diameter of bell mouth shall be not less than
Meters	Feet	
12m or more but less than 20m	39.4' or more but less than 65.6'	200mm or 7.9"
20m or more	65.6' or more	300mm or 11.8"

Where practicable, a power driven bell striker is recommended to ensure constant force but manual operation is acceptable.

The mass of the striker shall be not less than 3 percent of the mass of the bell.

Required Charts and Publications - 46 CFR 184.420

General Requirements

Each vessel is required to have on board the following, as appropriate for the vessels route:

- Charts of large enough scale to make safe navigation possible.
- U.S Coast Pilot or similar publication.
- Coast Guard Light List.
- Notices to Mariners.
- Tide tables.
- Current tables or a river current publication issued by the U.S. Army Corps of Engineers or river authority.

Extracts from the publications may be used instead of the complete publication, provided the extract covers all of the vessel's operating area.

Internal Communication Systems - 46 CFR 184.602 - 184.610

Pilot House/ Machinery Space

A vessel equipped with pilothouse control must be equipped with a fixed two--way communication system between the operating station and the location where the means of controlling the propulsion machinery is located. *(This is to provide communication to manually control the propulsion machinery should the normal control system fail).*

If the vessel is equipped with an auxiliary means of steering, it must also have a fixed two--way communication system.

A fixed two--way communication system is not required when:

- The vessel has two screws.
- The locations listed above are sufficiently close together that direct voice communications is possible to the satisfaction of the OCMI.

The OCMI may accept hand held portable radios.

Public Address System

Each of the following vessels is required to have a fixed public address system operable from the operating station capable of being heard in all passenger and crew locations:

- A vessel ≥ 65 feet in length.
- A vessel with more than one passenger deck.
- A vessel with overnight accommodations.

Vessels ≤ 65 feet may use a bull horn if audible throughout the accommodation spaces during normal operating conditions to the satisfaction of the OCMI.

Vessels carrying ≤ 49 passengers are not required a public address system if a public announcement made from the operating station without amplification can be heard throughout the accommodation spaces to the satisfaction of the OCMI.

Propulsion Engine Control Systems - 46 CFR 184.620

General Requirements

A vessel must have two independent means of controlling each propulsion engine. Control must be provided for the engine speed, direction of shaft rotation, and engine shutdown.

One means may be the ability to readily disconnect the remote engine control linkage to permit local operation at the engine. Communication must be provided between the engine and the control station as determined by the OCMI.

A multiple engine vessel with independent remote propulsion controls need not have a second means of controlling each engine.

Engine Shutdown

In addition, as required above, a vessel must have a reliable means of shutting down a propulsion engine from the operating station that is independent of the engine's speed control.

Loss of Power to the Control System

A propulsion engine control system, including pilothouse control, must be designed so that a loss of power to the control system does not result in an increase in shaft speed or propeller pitch.

SECTION F

STABILITY & SUBDIVISION REQUIREMENTS

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Stability Tests - 46 CFR 178.310 & 178.330

Simplified Stability Test

Prior to being certificated a vessel must have undergone a stability test.

The following vessels are allowed to undergo a *simplified stability test*.

- Vessel \leq 65 feet and carries less than 150 passengers or;
- Carries less than 12 on an international voyage or;
- It has not more than one deck above the bulkhead deck.

Upon completion of a satisfactory simplified stability test our office will issue a stability letter.

Inclining Experiment

All other vessels are required to undergo a full *inclining experiment*. This will normally require the owner to employ the services of a Naval Architect. This test is not covered in this handout, as it is beyond the ability of most owners to complete by themselves. The Coast Guard Inspector is only a witness to the experiment and all results must be submitted to the U.S. Coast Guard Marine Safety Center (MSC) for review. The results will be evaluated and, if satisfactory, the stability letter will be issued by the MSC.

Posting the Stability Letter

All pages of the stability letter are required to be posted aboard the vessel behind glass or clear plastic in the pilothouse.

Stability Tests - (Continued)

Conducting the Simplified Stability Test

A simplified stability test can normally be completed in a day and is one of the last items to be completed prior to issuing a COI. All modifications to the vessel must have been completed and all required equipment and any fixed ballast must be aboard the vessel for this test.

This is a pass-fail test. You are encouraged to maximize the number of persons to be carried on the vessel as well as test for the most stringent and/or flexible routes envisioned for the vessel's operation.

The following chart shows the steps of a simplified stability test. The vessel owner is responsible for providing all necessary weights and the manpower to move the weights.

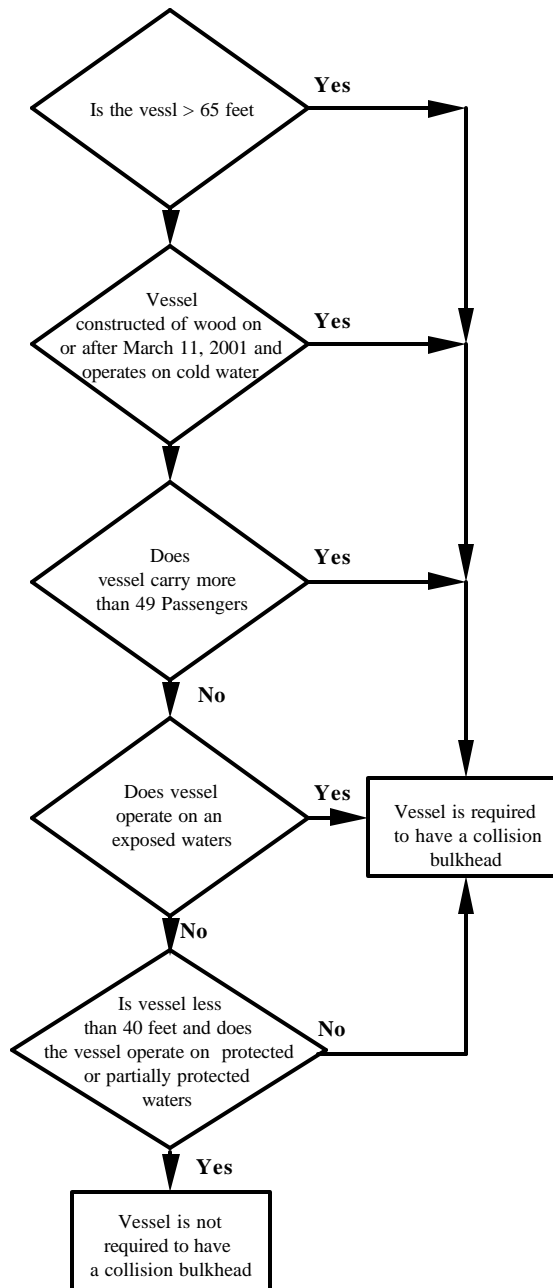
Step	
1	<p>Prior to the Coast Guard Inspector's arrival</p> <ul style="list-style-type: none">• All fuel and water tanks must be approximately three quarters full. If tanks have cross connection valves these valves must be open.• The owner must have all weights used to simulate passengers at the vessel (eg sand bags or water barrels or other weights). A scale to prove weight must also be present.• Vessel mooring lines must slacked off so that they do not interfere with the vessels listing during the test.
2	<p>On arrival the inspector will determine where the weights shall be distributed aboard the vessel so as to obtain the normal operating trim.</p> <ul style="list-style-type: none">• The total weight placed aboard the vessel will be determined by multiplying the number of persons the vessel will carry times 160 pounds, except that on vessels with protected water routes, the number will be 140 pounds per person.• All weights must be positioned so that the center of gravity of the weight is approximately 2.5 feet above the deck. If necessary the owner will need to provide a means of elevating the weights to the proper height.
3	<p>Once all weights are distributed the Inspector will take several measurements of the vessel and make a temporary mark on the hull. This mark is the maximum allowable immersion line.</p> <ul style="list-style-type: none">• The inspector will then calculate the maximum required heeling moment and advise the owner of how much weight must be moved and how far.
4	<p>Once all weights have been moved the Inspector will examine the mark that was made on the hull. If the mark is not submerged the vessel has passed the stability test. If the mark is submerged the Inspector may do additional tests with less weight in an attempt to find where the vessel will pass.</p>
5	<p>Once satisfactory a stability letter will be issued by our office specifying the amount of persons allowed on board for each operational route.</p>

Collision Bulkheads - 46 CFR 179.210 & 179.310

General Requirements

A collision bulkhead is a watertight bulkhead installed at the forward part of the vessel to protect the vessel from flooding in case of damage to the bow.

To determine if your vessel is required to have a collision bulkhead use the chart below.



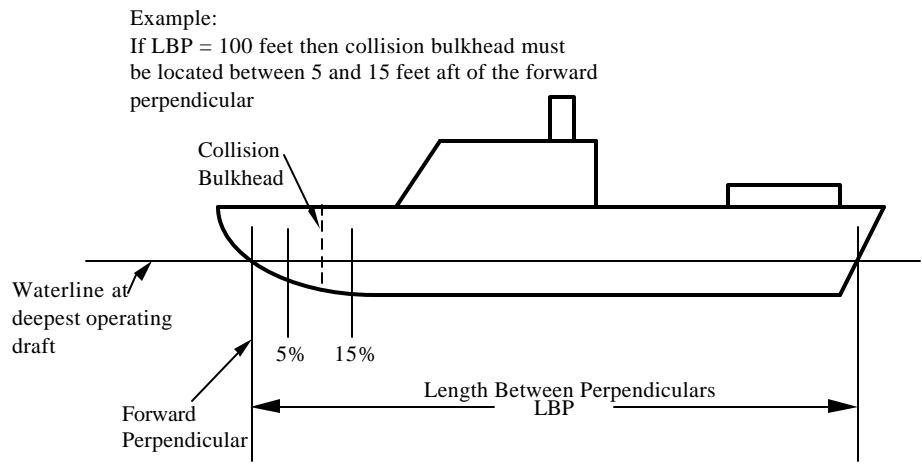
Note: See page A-10 for definitions of vessel routes.

Collision Bulkheads - (*Continued*)

Calculating the Location of the Collision Bulkhead

The location of the collision bulkhead is determined by first determining the Length Between Perpendiculars (LBP); LBP is the horizontal distance measured between perpendiculars taken at the forward most and after most points on the waterline corresponding to the deepest operating draft.

The collision bulkhead must be located between 5% and 15% of LBP as measured aft of the forward perpendicular.



Construction Requirements

The collision bulkhead must

- Be watertight and extend to the weather deck.
- May not have a watertight door in it.
- If not required to comply with a one or two compartment standard of flooding, it may have an opening sized so that:
 - * The lowest edge of the opening cannot be more than 12" down from the bulkhead deck, and;
- There must be at least 36 inches of intact collision bulkhead below the lower edge of the opening.

Subdivision Bulkheads - 46 CFR 179.212 - 179.230 & 179.320

General Requirements

In addition to a collision bulkhead, vessels that carry more than 49 passengers must also have transverse watertight bulkheads that subdivide the vessel.

Transverse watertight bulkheads are placed at strategic locations throughout the vessel such that flooding damage is minimized should the vessel become damaged below the waterline.

A form called simplified subdivision is available from our office. If your vessel requires subdivision bulkheads you can work through this form with the inspector assigned to your project. This form will be very useful in determining the placement of bulkheads below the main deck.

Watertight Door in Subdivision Bulkheads

The use of watertight doors in subdivision bulkheads is very restricted.

Watertight doors are not allowed in subdivision bulkheads of vessels that proceed more than 20 nautical miles from shore.

Watertight doors are only allowed in subdivision bulkheads on all other vessels only in bulkheads that separate a machinery space from an accommodation space and only as allowed by the OCMI.

Hatches - 46 CFR 178.360

General Requirements

All hatches exposed to the weather must be watertight, except the following hatches may be weathertight:

- On a watertight trunk that extends a minimum of 12 inches above the weather deck.
 - On a cabin top.
 - Each hatch on a vessel that operates only on protected waters.
-

Securing Devices and Keeper Chains

All hatch covers are required to:

- Have securing devices.
 - Be attached to the hatch frame or coaming by hinges, captive chains or other devices.
-

Watertight Definition

The term watertight means to effectively resist the passage of water when subjected to a hose test of 30 psi, with no leakage of water.

Weathertight Definition

Weathertight means that in any sea condition, water will not penetrate into the vessel in any appreciable amount.

The test for weathertight consists of hose testing for several minutes and allowing no more than a slight seepage of water to pass.

Watertight Coamings - 46 CFR 179.360(d)

General Requirements

Watertight coamings are required at the base of all weathertight doors located in a deckhouse or a companionway that give access into the hull, if it is located in:

- A cockpit, a well, or an exposed location on a flush deck vessel.

If the door is a watertight door, the watertight coaming need only be sufficient to accommodate the door.

Height of the Coaming

The coaming height requirement is based on the vessel's route.

Route	Height of Coaming
Exposed or partially protected waters	6 inches
Protected waters	3 inches

Note: See page A-10 for definitions of vessel routes.

Hull Penetrations - 46 CFR 179.350

General Requirements for Sea Valves

Except for engine exhausts, each inlet or discharge pipe that penetrates the hull within six inches of the waterline and below at the vessel's deepest operating draft must have a positive action valve or cock that is located as close to the hull as possible.

This is required to prevent water from entering the vessel if the pipe fractures or otherwise fails.

The valve must be constructed of metal or equivalent material. Cast iron is not allowed because of its brittleness. "Sea cocks" must be equipped with a positive means of locking the cock into the body; cotter pins may not be used to achieve this end. Valves that use resilient seats must meet the above requirements.

Drainage of Weather Decks - 46 CFR 178.410 - 178.450

General Requirements

The regulations identify 4 types of vessels:

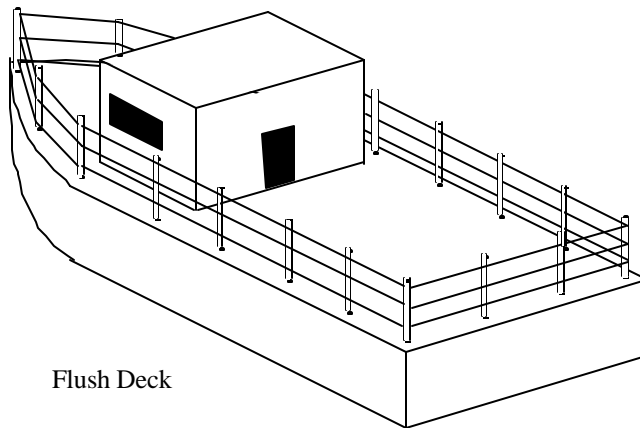
- Flush deck.
- Open boat.
- Cockpit deck.
- Well deck.

The regulations require that a vessel be provided with a means for rapidly clearing water from the decks. This is accomplished by the natural design of the vessel or the installation of freeing ports or scuppers.

A collection of a small quantity of water can drastically affect a vessel's stability.

Drainage of a Flush Deck Boat

"Flush deck" means a continuous weather deck which is watertight and flush with the side shell of the hull.



Flush Deck

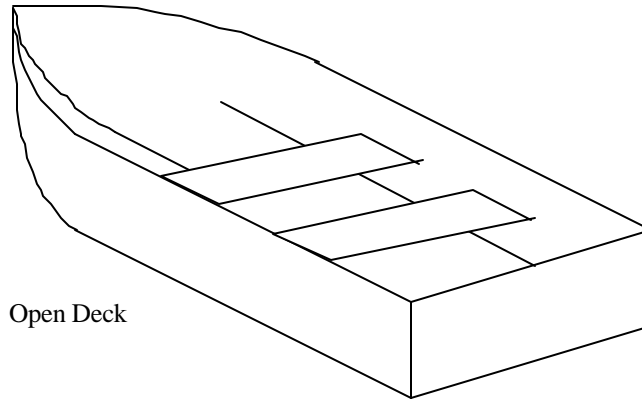
The weather deck must be watertight.

The forward 1/3rd may have solid bulwarks if there is sufficient sheer to ensure drainage of water aft and if bulwarks do not form a well on all sides to trap water.

Drainage of Weather Decks - *(Continued)*

Drainage of a Open Boat

"Open boat" means a vessel not protected from entry of water by means of a complete deck.



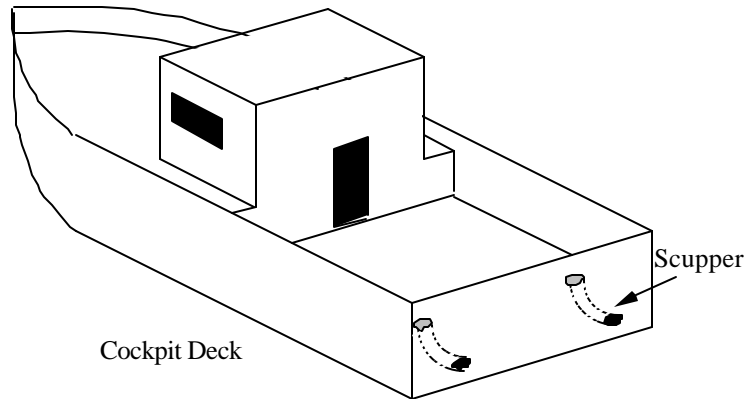
Open Deck

The deck within the hull of an open boat must drain to the bilge. Overboard drainage of the deck is not permitted.

Drainage of Weather Decks - (Continued)

Drainage of a Cockpit

"Cockpit" means an exposed recess in the weather deck extending no more than 1/2 of the length of the vessel measured over the weather deck.



The cockpit must be watertight, except that:

- There may be a watertight door with coaming.
- There may be vent openings if:
 - The vessel operates on protected or partially protected waters.
 - The openings are located as high as possible in the side of the cockpit.
 - The height of the opening does not exceed 2".

The cockpit must be designed to be self bailing.

Scuppers with a minimum area must be located in a cockpit to allow rapid clearing of water in all probable conditions of list and trim. Scuppers are drains located at the base of a cockpit.

The minimum scupper area is calculated based on the area of the cockpit using the formula listed in 46 CFR 178.450.

Drainage of Weather Decks - (Continued)

Height of a Cockpit Deck

The cockpit deck of a vessel that operates on exposed or partially protected waters must be at least 10" above the deepest subdivision loadline, unless the vessel complies with:

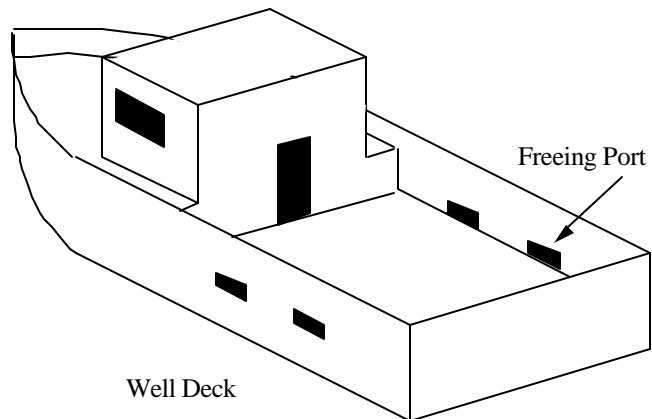
- Intact stability requirements (171.050).
- Type II subdivision requirements (171.070, 171.072 & 171.073), and;
- Damage stability requirements (171.080).

For vessels that do not operate on exposed or partially protected waters, the cockpit deck must be located as high as practicable above the deepest subdivision loadline.

Drainage of Weather Decks - (Continued)

Drainage of a Well Deck

"Well deck" means a weather deck fitted with solid bulwarks that impede the drainage of water over the sides, or an exposed recess in the weather deck extending 1/2 or more of the length of the vessel measured over the weather deck.



Each deck must be watertight.

The bulwarks that form a well must be provided with **freeing ports** and will be determined by using the formula listed in 46 CFR 178.450.

SECTION G

MISCELLANEOUS REQUIREMENTS

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Bilge & Bilge Level Alarm Systems - 46 CFR 182.500 - 182.540

Introduction

Vessels of at least 26 feet in length must be fitted with individual bilge suction lines and bilge suction pumps for each watertight compartment.

The space forward of the collision bulkhead need not be fitted with a bilge suction line if a hand operated bilge pump or other equipment can be used to remove water and if the equipment is provided aboard the vessel.

Bilge Piping

Bilge piping sizes must be as follows:

- Vessel \leq 65 feet
 - not less than 1 inch.
- Vessel $>$ 65 feet
 - not less than 1 1/2 inches.

Except when individual bilge pumps are provided for separate spaces, individual bilge suction lines must be led to a central control point or manifold and provided with a stop valve at the control point or manifold and a check valve.

Bilge Suctions

Bilge suction pumps shall be fitted with suitable strainers having an area of not less than 3 times the bilge pipe diameter.

Bilge & Bilge Level Alarm Systems - (Continued)

Submersible Electric Bilge Pumps

Submersible electric bilge pumps may be used on a vessel that is not a ferry and is ≤ 65 feet in length carrying less than 49 passengers provided:

The pump :

- Is UL approved, (or approved by another independent laboratory acceptable to the OCMI).
- Services only one watertight compartment.
- Is permanently mounted.
- Is equipped with a strainer that can be readily inspected and cleaned.

Individual power pumps used for separate spaces must be:

- Controlled from a central control point, and;
- have a light or other visual means at the control point to indicate operation.

Flexible tube or hose may be used instead of fixed piping for the pump discharge line.

The line must:

- Be suitably supported.
- Not penetrate a watertight bulkhead.
- Be of good quality and suitable for the intended use.
- Be highly resistant to salt water, petroleum oil, heat and vibration.

Hull penetrations must be:

- Placed as high above the waterline as possible.
 - Fitted with a sea valve at the hull penetration.
-

Bilge & Bilge Level Alarm Systems - (Continued)

Bilge Pumps for Fixed Bilge Systems

A vessel must be provided with bilge pumps as listed below.

Number of Passengers	Length of Vessel	Bilge pumps required	Min. Capacity Required (Gal. per minute)
Any number	Over 65'	2 fixed power	50 GPM
More than 49 passengers and all ferry vessels	65' and less	1 fixed power and 1 portable hand	25 GPM 5 GPM
Carrying 49 or less passengers other than ferry vessels	26' up to 65'	1 fixed power and 1 portable hand or:	10 GPM 5 GPM
		1 fixed hand and 1 portable hand	10 GPM 5 GPM
	Less than 26'	1 portable hand	5 GPM

Each fixed power bilge pump:

- Must be self priming.
- May be driven off the main engine or other source of power.
- Must be permanently connected to the bilge manifold and may connect to the fire main (if of sufficient capacity, a power bilge pump may also serve as a fire pump).

Where two fixed power bilge pumps are installed, they must be driven by different sources of power. One could be driven mechanically while the other is driven electrically. In a twin-engine vessel, each pump may be driven off of a different engine.

Bilge & Bilge Level Alarm Systems - (Continued)

Hand Operated Bilge Pumps

The Hand Operated Bilge Pump must be:

- Capable of pumping the minimum quantity of water listed in the chart.
- Capable of pumping water from the bilge to overboard, but not necessarily from all watertight compartments at the same time.
- Provided with a suitable suction and discharge hose capable of reaching the bilges of each watertight compartment and pumping the water over the side.

Note: A second power pump is an acceptable alternative to a hand pump if it is supplied by a source of power independent of the first power bilge pump.

Bilge High Level Alarms

Vessels of 26 feet and over are required to have a Bilge High Level Alarm that indicates a visible and audible alarm at the vessels operating station in each of the following unmanned spaces

- A space with a thru hull fitting below the deepest load waterline.
- A machinery space bilge, bilge well or other spaces subject to flooding from sea water piping within the space.
- A space with a non-watertight closure, such as a space with a non-watertight hatch on the main deck.

For vessels that have alarms in multiple unmanned spaces the alarm must indicate which space is generating the alarm.

Vessels constructed of wood must have bilge high level alarms in each watertight space in addition to those required above.

Automatic Bilge Pump Indicator

A visual indicator must be provided at the vessel's operating station to indicate when and where any automatic bilge pump is operating.

Diesel Fuel System Requirements - 46 CFR 182.435 - 182.480 & 182.720(e)

Integral Fuel Tank Construction

Fuel tanks integral with the vessel's hull are allowed if the hull material is

- Steel
- Aluminum
- FRP (Sandwiched construction cannot be used, unless the core material used is closed cell polyvinyl chloride.)

Independent Fuel Tank Construction

Independent fuel tanks can be constructed of

- Nickel-copper
- Copper-nickel
- Copper
- Copper-silicon
- Steel
- Iron
- Aluminum or
- FRP

Table 182.440(a)(1) lists thickness and construction requirements based on fuel tank capacity.

Metal tanks must have baffles at least every 30 inches that are welded or brazed to the side of the tank. Baffles must have air holes at the top and limber holes at the bottom.

Diesel Fuel System Requirements - (Continued)

Fuel Tank Fill Piping

Fuel tank fill and sounding piping must be a minimum of 1.5 inches in diameter.

There must be a means of determining the amount of fuel. This can be done by sounding through a separate sounding tube, fill pipe or by a marine type fuel gage.

The fill piping must run as directly as possible, preferably in a straight line from the deck connection to the top of the tank, and must also be arranged so that overflow of fuel will not run into the vessel.

If flexible hose is used it must:

- Be suitable for the intended service.
- Overlap the metallic pipe ends at the least 1.5 times the pipe diameter and must be secured at each end by double hose clamps.
- Be provided with a method to make the fuel tank electrically continuous with the fill pipe (grounding strap).

Fuel Supply Piping

Fuel supply piping shall be of copper, nickel copper, or copper nickel having a minimum wall thickness of 0.035 inch except that piping of other materials such as seamless steel pipe or tubing which provides an equivalent level of safety may be used. Aluminum pipe must be a minimum of schedule 80. Aluminum pipe is acceptable for use on aluminum vessels only.

Fuel lines shall be accessible, protected from mechanical damage, and secured against excessive movement and vibration by the use of metal straps with no sharp edges.

Where fuel lines pass through watertight bulkheads they shall be protected by close fitting ferrules or stuffing boxes.

Diesel Fuel System Requirements - (Continued)

Fuel Supply Hose as Supply Line

Flexible non-metallic hose may be used as a supply line provided it is fitted with suitable connection fittings and has high resistance to saltwater, petroleum oils and vibrations.

Flexible non-metallic hose runs shall be visible, easily accessible, protected from mechanical damage, and shall not penetrate watertight bulkheads.

Flexible non-metallic hose shall meet SAE standard J-1942 "Hose and Hose Assemblies for Marine Applications" or be specifically approved by the Commandant. The hose must either be factory assembled requiring no further adjustment of the fittings on the hose, or fittings meeting SAE J-1475 or equivalent shall be used. If special equipment is required (such as crimping machines) the type and design specified by the manufacturer must be used.

Flexible Hose at the Engine

A flexible hose or loop of tubing shall be installed in the fuel supply line at or near the engine to protect the line from vibration.

Flexible hose used for this purpose shall not be longer than 30" in length. The hose must meet the requirements as listed above.

Fuel Shutoff Valves

Emergency fuel shut-off valves shall be installed on the fuel supply piping at the fuel tank and at the engine.

The emergency fuel-shut off valve at the tank must be accessible from outside the fuel tank space, preferably on the weather deck. The location of the valve must be labeled "emergency fuel shut-off" in 1" high letters and must include the direction of operation. If reach rods are installed in the weather deck, some form of flame impingement protection shall be provided for the handle.

Diesel Fuel System Requirements - (*Continued*)

Fuel Strainers

Suitable marine type strainers shall be fitted in the fuel supply line in the engine compartment.

Strainers with a plastic bowl (RACOR) may be required to have a metal flame impingement bowl attached underneath the plastic bowl.

Fuel Tank Vents

Fuel tanks shall be fitted with a vent pipe at its highest point under normal operating conditions.

The minimum net cross-sectional area of the vent pipe shall be as follows:

- Not less than 5/8" O.D. tubing (.035" wall thickness-20 gage) if the fill pipe terminates at the top of the tank.
- Not less than 3/4" O.D. tubing (.035" wall thickness-20 gage) if the fill pipe extends into the tank.

The discharge end must be fitted with a removable flame screen of corrosion resistant wire of 30 X 30 mesh and be located:

- On the hull exterior, as high as practicable above the waterline and away from any hull opening, or;
 - Terminate in U-bends as high above the weather deck as practicable and away from any living quarters or below deck spaces.
 - So installed as to prevent water contamination during normal operating conditions.
-

Gasoline Fuel System Requirements - 46 CFR 182.435 - 182.480 & 182.720(e)

Note:

Gasoline propelled vessels can be certified for carrying passengers. Although similar to diesel fuel system requirements, due to the increased flammability, there are additional requirements.

Included among these is the requirement to install a fixed fire extinguishing system in the machinery space, a vapor detection system, forced ventilation for the engine space, as well as differences in the fuel system.

If certifying a gasoline-propelled vessel, the inspector assigned to you will assist with the additional requirements. These specific requirements can be found in 46 CFR 182.400 thru .480.

Ventilation System Requirements - 46 CFR 182.465 & .470

Compartments Containing Machinery

Spaces containing machinery shall be fitted with at least two ducts to furnish natural or mechanical air supply and exhaust ventilation.

One duct shall extend to a point near the bottom of the compartment and be so installed that the ordinary collection of water in the bilge will not trap the duct.

Where forced ventilation is installed the duct extending near the bottom shall be the exhaust.

The total inlet and outlet area of each duct shall be not less than one square inch for each foot of beam of the vessel. This minimum shall be increased if ducts are also used to provide air for the engine intakes.

Ducting Material

All duct material shall be of rigid permanent construction and made of the same material as the hull or of a non-combustible material and must be reasonably gastight.

The ducts must lead out of the compartment as directly as possible and be securely fastened and supported.

Duct Cowls

All supply ducts for ventilation shall be provided with cowls or scoops having a free area not less than twice the required duct area.

If the mouth of the duct is screened the area must be increased to compensate for the area of the screen.

Compartments Containing Diesel Fuel Tanks

Unless provided with ventilation as stated above, enclosed compartments containing diesel fuel tanks and no machinery shall be provided with a goose-neck vent of not less than 2 1/2 inches in diameter. Openings shall not be located adjacent to possible sources of vapor ignition.

In small compartments, a vent of not less than 1 1/2 inches may be used. Compartments that are adequately ventilated are not required to have goose-neck vents installed.

Marine Sanitation Devices - 46 CFR 184.704 & 33 CFR 159.7

General Requirements

Vessels are not required by regulation to have a toilet or Marine Sanitation Device (MSD). If installed, the installation must be as follows:

MSD's are classified as a Type I, II, or III. Type I and II treat the sewage so that it can be pumped overboard. Type III MSD's are holding tanks and can only be pumped ashore or in the territorial seas, beyond three miles from shore.

NOTE: Michigan waters are considered to be "NO DISCHARGE ZONES" by the State of Michigan.

Vessels less than 65 feet are allowed to use Type I, II or III MSDs, all other vessels are required to use a Type II or III. MSDs must have a "Coast Guard Certified" label and be certified for inspected vessels.

MSD Piping

Type I and II MSD's can be piped for discharge of sewage overboard. Note that state and local laws may have **"No Discharge Zones"** (Michigan waters) in which no sewage may be pumped overboard. Operators should check with state and local authorities as to the laws in your area of operation.

Federal Regulations do not allow the pumping of untreated sewage overboard within three miles of the mainland shore.

Vessels with Type III MSD's with routes restricted inside the three mile limit cannot be plumbed overboard but must be plumbed to a pump-out connection on the deck.

Vessels with Type III MSD's with routes outside the three miles may install a Y-valve to allow pumping overboard when beyond three miles from shore. Whenever the vessel is inside the three mile limit, the valve must be locked in the closed position, preventing discharge over the side.

Placard Required

Operators on routes greater than three miles from shore shall install a placard at the Y-valve that states; "This valve to remain locked in the closed position when within three miles of the mainland shore."

Steering System Requirements - 46 CFR 182.600 - .620

Main Steering

A self propelled vessel must be provided with a main steering gear that is:

- Of adequate strength and capable of steering the vessel at all speeds.
- Designed to operate at maximum astern speed without being damaged or jammed, and;
- Capable of moving the rudder from 35 degrees on one side to 30 degrees on the other side in not more than 28 seconds with the vessel moving ahead at maximum service speed.

Auxiliary Steering

The steering must be designed so that transfer from the main steering gear or control to the auxiliary steering may be achieved rapidly. Any tools or equipment necessary to make the transfer must be readily available.

The following vessels are not required to have auxiliary steering:

- Main steering gear and controls are provided in duplicate.
 - Multiple screw propulsion with pilothouse control for each screw.
 - No regular rudder is fitted and steering action is obtained by a change of setting of the propelling unit.
 - Normal means of steering is a hand tiller and rudder.
-

Railing Requirements - 46 CFR 177.900

General Requirements

Rails or equivalent protection are required near the periphery of all weather decks accessible to passengers or crew. Equivalent protection may include lifelines, wire rope, chains and bulwarks, which provide strength and support equivalent to fixed rails.

Deck rails must withstand a 200-pound load in any direction and a 50 pound per foot load applied to the top rail in any direction.

Ferry or Excursion Type Operations

Vessels engaged in ferry or excursion type operations including but not limited to sight seeing trips, dinner and party cruises, and overnight cruises, shall have rails a minimum of 39-1/2 inches high.

On this type of vessel the space below the upper rail is required to be fitted with:

- Bulwarks,
 - Chain link fencing or wire mesh that has openings of not more than 4 inches in diameter, or;
 - Bars, slats, rail courses, or and equivalent spaced at intervals of not more than 4 inches.
-

Sport Fishing Vessels

On sport fishing vessels where it can be shown that higher rails would interfere with normal operations, rails of at least 30 inches may be permitted.

Courses must not be more than 12 inches.

When the vessel is not being used in this capacity, the vessel must comply with the applicable railing requirement.

Railing Requirements - (Continued)

Water Taxies, Pilot Boats, Dive Boats

Where the principle business of a vessel requires the discharge of personnel in a seaway, the OCMI may accept alternatives for those areas of a deck where passengers or cargo are discharged and for which removable rails, lifelines or chain would hinder discharge operations.

Vessels Subject to 1966 International Loadline Rules

Rail height shall not be less than 3-1/2 inches.

Courses must not be more than 15 inches.

All Other Vessels

All other vessels not mentioned above shall have a minimum rail height of 36 inches.

Courses must not be more than 15 inches.

Sailing vessels, small vessels of the open launch type and other vessels not specifically covered elsewhere, shall have rails or equivalent protection as considered necessary by the OCMI.

SECTION H

DRUG TESTING PROGRAM REQUIREMENTS

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Required Elements of a Drug Testing Program

Introduction

As of December 21, 1990 Federal Regulations require that you have a drug-testing program in force.

This handout is provided to assist you in putting together your own program, and ensuring the program you have meets federal requirements.

Element Required

Every drug test program must consist of the following elements.

- **Use of a Federally Certified Testing Laboratory**
 - **Use of an approved Collection Site**
 - **Have a Medical Review Officer**
 - **Provide Training & Education**
-

Certified Lab 49CFR40

The *Lab* performs the tests on specimen collected for the following drugs:

- **Marijuana**
- **Cocaine**
- **Opiates**
- **Phencyclidine (PCP)**
- **Amphetamines**

The lab you select must be certified by the **Department of Health and Human Services (DHHS)**. The latest list of certified laboratories can be found on the internet at

www.health.org/labs/index.htm

Collection Site 46CFR4.06-20 46CFR16.301-330 49CFR40

The *Collection Site* is the place where the specimen is collected. Note that some certified labs have designated which sites and persons they will allow to collect and maintain the required security and chain of custody.

The regulations are very specific in how specimens are collected, and how specimen containers are sealed and transported. A chain of custody must be maintained from the time of acceptance of the specimen to its testing.

We recommend that you contact several different labs listed to determine which has collection sites nearest you and which provide the service you desire.

Required Elements of a Drug Testing Program (*Continued*)

Medical Review Officer **46CFR16.370** **49CFR40**

A *Medical Review Officer (MRO)* must review drug test results, relay findings to the employer, and is authorized to notify the Coast Guard of positive test results.

The MRO must be a licensed physician who has knowledge of substance abuse disorders and has appropriate medical training to interpret and evaluate an individual's positive test results together with his or her medical history and any other relevant biomedical information.

Before an individual who has failed a required test may return to work, the Medical Review Officer shall determine that the individual is drug free and the risk of subsequent use of dangerous drugs by the person is sufficiently low to justify his or her returning to work. In addition the individual shall agree to be subjected to increased unannounced testing for a period as determined by the Medical Review Officer for a period of up to 60 months.

Education and Training **46CFR16.401**

Education

Education is accomplished by the posting and distribution of the following:

- Informational materials concerning substance abuse.
- A community service hotline for crewmember assistance.
- The employers policy regarding drug and alcohol use in the workplace.

Training (*for employers, crewmembers and supervisory personnel*)

- Training should include operation and requirements of the drug testing program and effects and consequences of drug use.
 - Minimum of 60 minutes for employers and supervisory personnel which includes behavioral cues for detection of drug use.
-

Tests Required by the Regulations

Introduction

You must ensure that your drug testing program provides for the following tests and have proof that the tests were accomplished. As a Marine Employer you must also obtain an applicants past two years drug and alcohol testing records from his previous employer prior to employment.

- **Pre-employment Testing**
- **Random Testing**
- **Periodic Testing**
- **Post Casualty Testing**
- **Testing for Reasonable Cause**

Who Must Be Tested

Any employee who is required aboard the vessel as prescribed by the Certificate of Inspection (COI) is required to be tested.

Example

- Master, Operator.
- Lookout.
- Navigator.
- Deckhand who handles lines.

Example of employees not required to be tested.

- Cook *
- Dishwasher *
- Waiter, waitress *
- Fish handler or cleaner *

** If any of the above also fills a position required by the COI or if they perform duties of deckhand, patrolman, watchman, or are specifically assigned the duties of warning, mustering, assembling, assisting or controlling movement of passengers during emergencies, they are required to be tested.*

Records

You must maintain records and have them available for Coast Guard inspection. Your records should list the date each of the following were accomplished:

- **Pre-employment tests.**
- **Periodic tests.**
- **Random tests.**
- **Post Casualty test.**
- **Testing for reasonable cause.**
- **When training was accomplished/who attended.**

Negative test results must be kept for 1 year. Positive test results must be kept on file for 5 years.

Tests Required by the Regulations (*Continued*)

Pre-employment Test 46 CFR 16.210

You must provide proof that employees hired after December 21, 1990 have passed a pre-employment drug screening test.

You may also use a drug screening test that was accomplished for another company, if done within 6 months of your hiring of the individual. You may also use a periodic test if completed within six months of your hiring the individual.

Random Testing 46 CFR 16.230

Random testing was required as of **1 October 1991** for all crewmembers. Random means that every crewmember of a given population has a substantially equal chance of selection. This chance of selection shall be such that an employees chance of selection continues throughout his or her employment.

You must ensure that crewmembers are tested on a random basis at an annual rate of not less than 50 percent.

Example:

An employer with over ten employees could assign each employee with a number 1 thru 10. Then 5 times during the year all 10 numbers would be placed in a hat and 1 number drawn. Those with that number would take the test.

Periodic Test 46 CFR 16.220

A periodic test is required when an employee holding a Coast Guard license or document applies for renewal.

This testing requirement does not apply to employees such as deckhands who do not possess a license or document.

Tests Required by the Regulations (*Continued*)

Post Casualty Testing 46 CFR 4.06

The employer must be prepared to test all crewmembers engaged or employed aboard a vessel involved in a serious marine incident within 24 hours of the incident.

Testing for both drugs and alcohol is required and must include a urine specimen and a blood or breath specimen.

If the vessel has a route that would keep it from returning to its collection site within 24 hours, required equipment and specimen containers must be kept aboard the vessel.

Reasonable Cause Test 46 CFR 16.250

The employer shall require any crewmember engaged or employed aboard the vessel to submit to drug testing. The decision must be based on a reasonable and articulable belief based on direct observation of behavioral, physical, or performance indicators.

Serious Marine Incident

A serious marine incident is defined as an incident that results in:

- Death.
 - Injury beyond first aid or not fit for duty.
 - \$100,000 or more in damage.
 - Loss of an inspected vessel.
 - Discharge of more than 10,000 gallons of oil.
 - Discharge of a reportable quantity of hazardous material.
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Ensuring Your Program is in Compliance

Introduction

During your annual inspection a Coast Guard Marine Inspector will ask you about your drug-testing program. The following checklist can be used to ensure that your program meets federal requirements and prepare you to answer the Inspectors questions regarding your program.

Checklist

	Drug Testing Program Checklist
	Do you have records/proof:
	That your testing laboratory is DHHA certified
	Of pre-employment testing
	Of periodic testing - <i>required at license renewal</i>
	Of random testing - <i>50% per year</i>
	That crewmembers have had training in substance abuse
	That employer and supervisors have had training in substance abuse and behavioral cues for detection of drug use. (Minimum of 60 minutes)
	Of a medical review physician active in your program
	Are you prepared to conduct:
	Post casualty testing within 24 hours of accident.
	Testing for reasonable cause

This checklist is similar to the one carried by Coast Guard Marine Inspectors to check operators for compliance with federal regulations.

Failure to Comply

Failure to comply with the Drug Testing Requirements can be cause for loss of your COI. If you have any questions contact the Senior Investigating Officer at (313) 568-9580.
